

The BRITISH JOURNAL OF TUBERCULOSIS

T. N. KELVINACK, M.D.

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ORIGINAL ARTICLES.

ON PREVENTIVE VACCINATION AGAINST TUBERCULOSIS WITH BCG, AS PRACTISED BY DOCTORS IN THEIR OWN FAMILIES.

By A. CALMETTE,

M.D.,

The Pasteur Institute, Paris.

It is now thirty years since I started with my co-worker Dr. C. Guérin to study preventive vaccination against tuberculosis. Up to 1921 we accumulated experimental evidence of the inoffensiveness of our vaccinal strain—which we designated for convenience BCG—by inoculation in every possible animal species susceptible to contract tuberculosis. We thus gained certainty, not only regarding the perfect harmlessness of BCG, but also as to its immunizing power against virulent tuberculous infections. We, however, hesitated to propose its use in the vaccination of human beings. Then Dr. Weill-Hallé, Director of the University School of Puericulture in Paris, and at that time doctor of the infant asylum of the Charité Hospital, who was very much interested in our researches, and had been impressed by the frequency with which tuberculosis is met with in infants infected during the first weeks of life, proposed to try our vaccinal strain on a child just born from a mother dying from tuberculosis, the infant being then brought up by a tuberculous grandmother.

It thus came about that a practising doctor first made use of BCG for the prevention of human tuberculosis. Dr. Weill-Hallé's trials were prudently extended to other infants between 1921 and 1924 and gave excellent results. Other doctors followed the example of Dr. Weill-Hallé, and everybody knows that today preventive vaccination against tuberculosis with BCG occupies an important place in France and in many other countries. A considerable amount of research work has been devoted to the use of BCG since 1924, and this method has

gradually penetrated into medical routine, so that actually in France, in 1932, one in every five newborn infants is vaccinated with BCG.

A number of doctors have applied for BCG to vaccinate their own children or grandchildren against tuberculosis. Being satisfied by the results, they have communicated them to us. As we have thought that it was impossible to get better and more enlightened information than that supplied by medical practitioners we decided to open an inquiry, which should be exclusively limited to those doctors who have vaccinated their own children at birth with BCG. Such an inquiry should be particularly important, for nobody could give more precise information or present a better and more firmly founded opinion than a doctor who followed with competence and care the immediate and ulterior effects of BCG in his own well-beloved children.

We have been able to secure the names of all these doctors in our record office, as far as they have made themselves known to us. We decided to send a brief inquiry to 282 doctors simultaneously (September 12, 1932). These were situated in nearly all the departments of France. In carrying out this inquiry we asked them to indicate to us the number of the children in each family, and the age of every child belonging to each family, who had been vaccinated with BCG by the oral method within the first ten days after birth. All important observations were noted in these children, and also in such infants as were vaccinated by these medical advisers in their private practice. Finally we begged them to make known to us their opinion on the value of BCG.

Nearly all of these doctors (exactly 280) graciously answered us, and we are profoundly indebted to them for the valuable and instructive information provided. We consider it our duty to put it at the disposal of medical advisers everywhere.¹

Many doctors still hesitate to use BCG vaccination regularly because of their uncertainty as to its harmlessness and a doubt as to its usefulness; they feel that they are not sufficiently acquainted with all aspects of the method. The study of these new documents will suffice to liberate their conscience from such scruples.

We will briefly relate the results of this inquiry as follows:

On November 1, 1932, we had received 280 answers from 80 different departments of France. Many colleagues declare that they have vaccinated several of their children, born since July, 1924, when BCG began to enter into medical practice. Some doctors have vaccinated up to seven children in the same family. The total number of children belonging to medical families vaccinated with BCG up to September 12, 1932, was 514; this is quite an imposing number.

¹ The documents of this inquiry were published at the end of November, 1932, in a special issue of the *Annales de l'Institut Pasteur*, published by Masson et Cie, Paris.

We may classify them as follows :

Age.				Number.
Under 1 year	...	...	...	91
From 1 to 2 years	...	...	...	90
" 2 " 3	"	...	...	95
" 3 " 4	"	...	...	68
" 4 " 5	"	...	...	54
" 5 " 6	"	...	...	56
" 6 " 7	"	...	...	39
" 7 " 8	"	...	...	17
" 8 " 9	"	...	...	4 ¹

Of these 514 children belonging to medical families and vaccinated at birth with BCG in the course of 8 years (1924-1932), 60 have certainly lived in contact with tubercle bacilli, and 43 have probably been definitely exposed to bacillary infection; 140 have been revaccinated once or twice, generally at the age of one and three years.

Up to September 15, 1932, seven have died (*i.e.*, 1.3 per cent.), and only one has died from a disease supposed to be tuberculous. The others died from the following diseases :

I	at the age of 38 days	from whooping cough.
I	" "	3 months from broncho-pneumonia.
I	" "	4 " " intestinal invagination.
I	" "	1½ years " capillary bronchitis.
I	" "	2 " " Shiga dysentery.
I	" "	2½ " " an accident.

The only death presumably due to meningitis concerns a child of three years, which had undergone an operation for appendicitis four months before death. This child had not been revaccinated, and lived in contact with a maid who was recognized later as being tuberculous. The father of this child had another infant later, now aged nine months, which he vaccinated at birth with BCG.

On September 15, 1932, 507 children survived. At this date their state of health can be indicated as follows :

221	were in excellent condition.
42	were in perfect condition.
95	were in very good condition.
6	were in a very satisfying condition.
131	were in good condition.
8	were in a satisfying condition.
4	were passably well or sickly (one of these had a broncho-pneumonia at the time of the inquiry).

Total 507

Of the 280 doctors who sent us answers to our inquiry, 118 have vaccinated, besides their own children, 7,017 other infants in general

¹ Vaccinations of 1924, when the method first entered into medical practice.

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practice; 21 other doctors do not furnish any numbers, but write us that they systematically vaccinate all the infants born from their patients. Without a single exception the 280 doctors declare that BCG vaccination is harmless.

The conclusions from this inquiry confirm those furnished by forty-six reports from foreign scientists, and published by the Pasteur Institute in May, 1932. We can recapitulate them as follows:

1. The perfect harmlessness of BCG, already shown by laboratory experiments by scientific societies and committees¹ and by clinical observation in every country, has been unanimously confirmed.

2. It is always noted that preventive vaccination with BCG, practised on a large scale, causes an important diminution of general infantile mortality. It eradicates almost completely the mortality from tuberculosis during the first year of life.

3. It is generally stated that children who have been vaccinated with BCG immediately after birth resist much better than non-vaccinated ones to the different children's diseases (measles, whooping cough, pneumococcal infections, enteritis).

4. In the beginning there was some apprehension as to a possible return to virulence of BCG in the organism of vaccinated children. Such fears can now be definitely abandoned for the following reasons:

(a) It has never been possible to restore the virulence of BCG by animal inoculation. Some facts have been published that might cast a doubt on this absence of experimental virulence, but a rigorous control of the experiments in question has established that they were erroneous, and this is confirmed by a great number of men of science, whose opinions are reliable because of their exceptional competence in this matter.²

(b) It happened more than once that a formidable dose of BCG was injected subcutaneously in an infant, or intravenously in an adult, without the least immediate or late accident resulting from such an error.

(c) More than 400 children, vaccinated immediately after birth with BCG and who died of different non-tuberculous diseases at

¹ Committee of Bacteriologists of the League of Nations (October, 1928); Ukrainian Committee in Kharkoff (1926-1932); Committee of the Medical Council of Canada (1926-1932); Technical Committee of the Académie de Médecine in Paris (July, 1931).

² We cite the best known of these authors: In Germany, Neufeld, Bruno Lange (Robert Koch Institute), Ludwig Lange, Hahn, Kolle, C. Prausnitz, H. Buschmann; in Austria, F. Gerlach; in Belgium, Malvoz, van Beneden, Nélis; in Brazil, de Assis; in Canada, Rankin; in Denmark, Jensen, Orskow; in the United States, William H. Park; in Great Britain, A. Stanley Griffith, L. Cummins; in Holland, Aldershoff; in Italy, G. Sanarelli, A. Ascoli, Ottolenghi; in Japan, Y. Watanabé; in Poland, Zeyland, Przesmycki; in Rumania, Cantacuzène, Nasta, Veber; in Sweden, Naeslund, Wallgren; in U.R.S.S., Tzekhnowitz, Elbert and Gelberg, Nechtschadimenko; in Uruguay, Moreau; in France (all our workers who devoted themselves to the study of BCG), A. Boquet, L. Nègre, A. Saenz, Ninni, de Monaldi, and moreover Prof. Léon Bernard, Prof. Robert Debré, Parisot and Saleur, Röhmer and Chaussinand, Leuret and Caussimon, Mauriac, Devuns, etc.

various ages, have been autopsied in different countries. Never prodigient, transmissible tuberculous lesions have been found in the organisms of such children. Very often pure strains of BCG have been isolated from their lymph glands. Such cultures, derived from BCG bacilli that had sojourned during many months in the infantile body, had all the characteristics of the original BCG strain without the least change of virulence.

(d) Those children vaccinated with BCG at birth, who are now more than ten years old, are all free from tuberculosis.¹

5. Drs. R. Debre and M. Lelong, and Miss Pictet, who controlled the tuberculin allergy in children vaccinated at birth, and belonging to the Infants Family Nursing Organization, directed by Professor Léon Bernard, found that the immunity caused by the first ingestion of BCG lasts at least five years. But this immunity being susceptible to give way under different circumstances, it is recommended to re-vaccinate periodically—*e.g.*, at the age of one, three, seven, and fifteen years.

Such revaccinations can be performed *per os* like the first one, for we know today that vaccinal microbes are constantly absorbed by the intestinal wall even in adults. This absorption being perfectly harmless in every case, it is not necessary to have it preceded by tuberculin tests as in the case of subcutaneous revaccinations. Consequently one should never omit them, and not trust in accidental virulent infections to entertain immunity, for such accidental infections are always dangerous for an organism having lost its allergy.

6. The absolute harmlessness of BCG, even for premature infants, delivers doctors and midwives of every kind of responsibility when a recently vaccinated child dies. It happens sometimes that a new-born child dies without any apparent reason, and this may be the case in vaccinated as well as in non-vaccinated infants, the infant mortality during the first month of life being about 6 per cent. in France, according to Marfan. Such deaths are due to congenital

¹ The number of vaccinations performed in France from July 1, 1924, to November 1, 1932, has been as follows:

In 1924, from July until the end of December	...	850
.. 1925, all year	...	4,328
.. 1926 ..	...	14,654
.. 1927 ..	...	37,529
.. 1928 ..	...	69,644
.. 1929 ..	...	80,888
.. 1930 ..	...	95,869
.. 1931 ..	...	101,646
.. 1932, until November 1	...	102,690
Total	...	508,098

The average number of vaccinations is 10,700 monthly. Outside of France, more than half a million children have been vaccinated until the beginning of 1932; and wherever this vaccination method be practised, it is noted that the infantile mortality from tuberculosis and the general infant mortality are considerably brought down.

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deformations (especially of the heart, liver or kidneys) or to hereditary syphilis, which is often ignored, or to causes which even autopsy fails to elucidate. These latter are cases of so-called "progredient denutrition" (Couvellaire) or "unexplained deaths" (Léon Bernard and Robert Debré). Such sudden deaths vividly impress the parents of the little patients, and it happened a few times, when such a case occurred shortly after BCG vaccination, that the doctor or the midwife attributed it to the vaccine for convenience. This is evidently absolutely false and unjust. Not a single one of the doctors who answered to our inquiry committed this error and injustice. They unanimously insist on the total absence of incidents caused by the vaccination and on the perfectly normal physical development of the vaccinated children.

7. We learn from the immense majority of the answers that the doctors, who are accustomed to BCG vaccination, in the beginning only used it for children born in contaminated or suspected families, but that they gradually extended it to infants born in healthy families when they had verified its total harmlessness. Many of them explain how they came to extend the method to children belonging to apparently healthy families, relating quite impressing observations of their own children, whom they had omitted to vaccinate because of the absence of any apparent source of bacillary infection, and who subsequently died of meningitis or another acute form of tuberculosis, infected as they were by a maid or an unsuspected relative or friend. Such doctors express the desire that every viable new-born infant be vaccinated with BCG, and we completely agree with them. It is, indeed, very important that all infants, even those who belong to apparently healthy families, should be vaccinated, for nobody knows to what unexpected tuberculous contact they may be exposed some day.

We cannot, however, agree with those doctors who wish that this preventive method with BCG should be rendered obligatory, not because we should be afraid of any accident to be attributed to BCG, for we are absolutely certain of its innocuousness, but it would be a psychological error, for every incident that would chance to happen after vaccination would immediately be attributed to the vaccine by the father, the mother, and even the neighbours. We think that BCG vaccination must become an established prophylactic habit before it can be imposed by law. That is the way Jenner's vaccination was introduced.

Having thus presented the results of our inquiry, and shown that those doctors who have vaccinated their own children have all become convinced partisans of the method, we venture to hope that henceforth we may rely on the collaboration of the medical profession. Thus in the near future the heavy expense experienced in every civilized

country by the multiplication of institutions devoted to the treatment and assistance of tuberculous patients will, we believe, be greatly lessened.

SOME OBSERVATIONS ON VENOUS PUNCTURE IN PULMONARY TUBERCULOSIS.

By HILARY ROCHE,

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A CONTRIBUTION by Mr. A. M. A. Moore, F.R.C.S., to the *British Medical Journal* of July 23, 1932, entitled "A Note on Blood Transfusion," gave rise to an interesting correspondence in that journal during several months. This discussion largely centred round the technique of venous puncture. Some of the correspondents stressed the importance of the great care which should be given to needles used for this purpose.

That the technique of venous puncture was an admirable one for discussion is obvious when one considers the amount of intravenous work carried out in modern medicine and the almost complete lack of instruction in this subject. The student or house medical officer is usually provided with a needle inadequate to the demands of sound intravenous technique: (1) the needle may come straight from manufacturers who are seemingly unaware of the mechanical defects of the type of bevel commonly supplied; (2) the needle may be one that has been used for a varying length of time without any attention to its bevel until its unfitness for use, often rendered obvious at the expense of patients' discomfort, is made apparent. In these circumstances it is not surprising that great facility for venous puncture is not nearly as general as it should be.

To those phthisiologists who make use of the intravenous route for estimations of the sedimentation rate of the red blood cells, and for aurotherapy, venous puncture has a special importance. Difficulty in intravenous technique has been one of the principal causes of the introduction of both the capillary method of investigating the blood sedimentation rate and of gold compounds for intramuscular injection. In both instances, however, I believe that the intravenous method, as regards greater reliability in the one case and greater efficiency in the other, has the support of the majority of phthisiologists.

Provided that the needles used are mechanically suitable and that they receive meticulous attention, venous puncture should present no

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difficulty. I have found the most suitable needle is one having a sharp, straight bevel of medium length. The ordinary hypodermic needle, the kind employed by the phthisiologist, usually comes from the manufacturers with a long, curved bevel. Such needles cause no difficulties with certain veins. To obtain, however, the best results in the great majority of cases, the bevel should be appreciably shortened and made straight.



The importance of inspection of the needle, if necessary with a hand lens, before use, and of the maintenance of a sharp cutting edge, straight and of medium length, was stressed by many authorities in the correspondence above referred to. Practice and patience are required to obtain the perfectly sharpened needle. With such a needle venous puncture can be done without discomfort to the patient, and with avoidance of damage to his morale.

I use ordinary platino-iridium needles for two reasons: Firstly, when for sedimentation estimations sodium citrate solution has been drawn from a stock bottle, such a needle can be rapidly sterilized by flaming before introduction into the vein; secondly, I am of the opinion, as a result of comparison with steel, that the "feel" of the vein wall is more delicately transmitted to the operator by platino-iridium. A minor disadvantage, perhaps, is that such a needle requires more frequent attention to maintain its bevel in perfect condition.

In my experience, confined largely to adults, needles sizes 15 or 16 are the most suitable for the large veins met with commonly in males.



ELBOW-SHAPED ATTACHMENT (BLACK) BETWEEN
THE SYRINGE AND THE NEEDLE.

Size 16 is a useful size for the majority of patients. I reserve size 17, and occasionally 18, either for rather thick-walled veins with narrow lumina or for small or medium-sized thin-walled veins which are superficial or buried in subcutaneous fat.

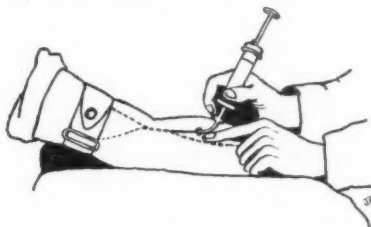
Most workers are, I believe, agreed that, when a syringe larger

SOME OBSERVATIONS ON VENOUS PUNCTURE 9

than of 2 c.c. capacity is employed, it is desirable, in order to ensure successful puncture, to use one with an eccentric nozzle or a hollow "elbow-shaped" connecting-piece between the needle and the syringe. I adopt this latter procedure. Either permits of the needle being introduced at an angle nearly parallel to the vein.

Adequate compression of the vein is a point of vital importance. Rubber tubing, held by artery forceps, is often used, but this procedure is not very comfortable to the patient, nor is it always efficient. Far more satisfactory is the band of a blood-pressure apparatus. I usually employ a cloth-covered elastic band $1\frac{1}{2}$ inches wide. Its length can be adjusted for each patient. Compression is obtained by encircling the limb with the band and buttoning one end into the other.

Fixation of the vein below the chosen site with the index finger of the free hand is essential. The degree of pressure needed to fix the vein will depend on its nature and site. Holding the syringe in the right hand I make the puncture over the middle of the vein, and introduce the needle as nearly as possible parallel to its course.



THE INTRODUCTION OF THE NEEDLE
INTO THE VEIN.

The "feel" of the puncture of the upper wall is usually unmistakable, and the needle is gently pushed a little further into the lumen. The finger used for fixing the vein can then be employed for steadying the syringe.

If all the points I have mentioned are carefully carried out the final step of introducing the needle into the vein should be felt by the patient no more than a skilfully given hypodermic injection, and venous puncture should become a matter both of simplicity and certainty.

CAVITATION IN PULMONARY
TUBERCULOSIS.

BY R. C. WINGFIELD,

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Medical Superintendent of the Brompton Hospital Sanatorium, Frimley.

"THE development of a cavity means to the rich patient merely a loss of lung tissue . . . the working man who has a cavity of medium size is, after all is said and done, doomed." There is a challenging note in this somewhat arresting generalization of Karl Fischel's,¹ and it may well serve as an excuse for an examination of the clinical importance of cavitation in pulmonary tuberculosis. Excerpted quotations, like generalizations, are dangerous things, but if the reader will refer to the original article he will find that the meaning of the words has not been distorted by removal from their context, and though the whole of Fischel's article insists upon the grave importance of cavitation in the prognosis of pulmonary tuberculosis, his generalization seems to contradict him, for it can be read to mean that cavitation *per se* is not important, but that his fate depends upon the patient's social and financial environment irrespective of whether his lesion contains cavities. It is a dangerous generalization, for if it is accepted as a truth it may be used as a basis for the energetic treatment of all cavities in one class of patient or as an excuse for ignoring them all in another class. Generalizations can never be used with any advantage in the study or treatment of pulmonary tuberculosis, for it is a disease of such immunological, epidemiological, and clinical pleomorphism that its handling must always be individualistic rather than communistic.

Whence comes our knowledge of cavities? Four sources supply the evidence: the autopsy, the X ray, physical examination, and symptoms. But during the last ten years the evidence from the X-ray has been permitted to outweigh that from all other sources. There is no doubt that post-mortem study, almost entirely confined to advanced disease, and physical examination have for many years misled us as to the normal course of tuberculosis in the lungs, and that it was the X ray which came to the rescue and revolutionized our conceptions. But its claims to supreme precedence in the study of cavitation need critical examination.

Pinner² classifies cavities into three types; his second type includes two sub-types, making four in all, thus:

¹ FISCHEL: *Amer. Rev. of Tub.*, October, 1931.

² PINNER: *Amer. Journ. of Rad. and Rad. Ther.*, xx, 518.

CAVITATION IN PULMONARY TUBERCULOSIS 11

1. Small multiple cavities contained in densely infiltrated lung parenchyma.

2. Sharply defined round or oval cavities : (a) With heavy perifocal inflammation ; (b) with thin clearly defined borders.

3. Irregular shaped cavities with dense walls.

With type No. 1 and type No. 3 we are all familiar in the X-ray film, in the hospital ward, and in the post-mortem room. They need no substantiation. No. 1, indeed, is only found in the fulminating case and will not concern us here. No. 3 is frequent in all types of cases, and its clinical significance will form a great part of this essay. No. 2 (a), and more especially No. 2 (b), must be discussed more carefully. The evidence of their existence and their habits rests almost entirely on X-ray interpretation. They are said to appear rapidly (within a few weeks) in recent infiltrations, to increase or diminish equally rapidly in size, and even to disappear as rapidly, leaving behind only a linear scar. Since it seems they can appear very quickly in an area of infiltration and are not necessarily associated with advanced disease, there is practically no post-mortem evidence to be obtained about them. Pinner says he has seen one at autopsy, a definite sharply defined ring set in normal lung tissue in the mid-third of a lung with a grossly infiltrated upper third. Unfortunately the removal of the lung from the thorax was so difficult that the whole organ was badly torn, and this thin-walled cavity in the lower lobe was so damaged that it could not be recorded by a photograph. I have searched much literature, but I have not yet been able to find any other account of these thin-walled cavities ever having been seen in the post-mortem room. We are all familiar with the X-ray appearance, a well-defined annular shadow. To these annular shadows have been ascribed various significances. They are annular pleural adhesions, they are localized pneumothoraces, they are air cysts in the interstitial lung tissue, they are cavities. The last is the most popular explanation, and of the four the most probable. But, while remaining open-minded, I have certain difficulties in accepting this explanation. Why do they so frequently give no symptoms of their onset or their presence? Can they be demonstrated as cavities by lipiodol? Why do they show such clean-cut edges to the X ray, as if they were shadowgraphs of hollow cylinders seen end on, rather than the gradual diminuendo of opacity from circumference to centre that one would expect in the image of a hollow sphere? These are some of the difficulties that need explanation. But let us leave these for the present.

How are cavities formed? The first step must be the necrosis of a portion of lung tissue. This necrosed tissue will become caseous or semi-liquid, and in that state it may remain unless it finds an outlet. Small caseous masses, potential cavities, are frequently found post-

mortem, but it is to be noted that the material is pasty or caseous and never liquid. Should it fail to find an outlet its impregnation with lime salts takes place until in time the mass becomes calcified. Such calcified masses of necrosed lung tissue, again, are frequently seen in the X-ray film and at the post-mortem, but it is rare to find them of any size; they are seldom bigger in cross-section than a sixpenny-piece. Apparently if the area of necrosis is much larger than this it will be sure to erode a patent bronchiole wall, establish a means of egress, and evacuate its contents. But in what form? Cavities are common, but the expectoration of caseous masses is rare. Communication with a patent bronchiole means that from that moment the flora of the respiratory tract have the freedom of that caseous mass. It is probably the resulting secondary infection that liquefies the caseous material and permits of its expulsion unrecognized as purulent sputum. It would appear, then, that some secondary organism—probably the streptococcus—is a necessary adjunct to cavity formation.

Is there a definite symptom syndrome of cavity formation? There probably is, but as cavities are usually small at first, the symptoms may be so delicate as to be overlooked or else overlaid and hidden by the symptoms of the active tuberculosis. But there is a definite phenomenon, which I have labelled for my own use "late cavitation," which, as it usually occurs in stable cases, does allow us to study the symptom syndrome of cavity formation. The cases in which "late cavitation" occurs are usually those who have attained a state of stability with reasonable health, but whose lungs contain *dense* areas of old infiltration. Cavity formation is ushered in by a pyrexial attack, usually not very severe or very prolonged, an increase of cough, and an increase in amount and purulency of sputum. One may imagine that the streptococcus has invaded the caseous mass. The initial attack subsides, but tends to recur at frequent intervals, and its subsequent appearances are usually accompanied by transient bronchitis very obvious to physical examination. The streptococcus, having found a new and very suitable breeding ground, thus begins to make its presence known. Other changes occur: the previously stable temperature is replaced by a niggling pyrexia to 99° or so in the evening between the exacerbations; sputum continues to be above the normal level of the patient's period of stability; a slow but steady general deterioration of health begins. Careful physical and X-ray examination will then reveal a cavity where there was not one before. This "late cavitation" may belie its name and occur within a few months of the attainment of stability, but as an extreme example I have seen it occur after fourteen years of robust health.

Now, however cavities may be classified—by shape, by size, by age, by state of wall, etc.—it is quite certain that, disregarding the ring

shadows mentioned before, there are cavities visible by X rays whose presence everyone will agree to and that these fall into two great classes: those that give symptoms and those that do not. To what this difference in their behaviour is due I cannot pretend to say. It may be secondary infection, it may be activity of tuberculosis in their walls, it may be localization, it may be the efficiency or inefficiency of their drainage (compare the differing symptoms of apical and basal bronchiectasis), but the difference is there. Another fact illustrates this truth. A patient may have obvious cavitation and symptoms therefrom: collapse by artificial pneumothorax is attempted and fails through pleural adherence: thoracoplasty is done with complete clinical success. Yet we know from post-mortem experience that a thoracoplasty, although it may constrict a cavity, does not collapse it. Similarly a phrenic evulsion may reduce or remove the symptoms from an apical cavity without making much obvious difference to its size. In both cases some change is produced which renders the cavity symptomless.

These thoughts on cavity formation and symptomatology lead me to doubt the apparent truth of the generalization with which I opened this essay, and rather to read from it its real meaning: that it is something more than mere cavity formation which is important to the patient. They also teach me to accept with the greatest caution the X-ray appearances of cavities in cases persistently sputum-free throughout their illness; and, lastly, that cavities are most wisely treated on their symptomatology and not on their X-ray appearance.

CAUSAL FACTORS IN THE DEVELOPMENT OF PULMONARY TUBERCULOSIS.

By JAMES WATT,

M.A., M.D., D.P.H.,

Medical Superintendent of King George V. Sanatorium, Godalming.

In a short space one can only discuss a few of the facts bearing on the causes of tuberculosis. The prime cause, of course, is infection with the tubercle bacillus, but in a community where this infection is practically universal and yet only something like 1 in 100 suffers from tuberculous disease and 1 in 1,000 dies of it every year, it is clear that infection plays a much smaller part in the actual incidence of tuberculosis than those other factors generally known as the predisposing causes. This fact is being constantly impressed on the sanatorium physician in a variety of ways.

No matter how well conducted a tuberculosis hospital or sanatorium

may be, it is certain that the members of its medical and nursing staffs receive from time to time into the system small doses of living tubercle bacilli. The finding of T.B. on the mucous membranes of the nose, mouth and throat of healthy persons looking after consumptives is well established.¹ Yet sanatorium staffs are no more liable to develop tuberculosis than others, indeed the liability is probably less.

In the case of the staffs of hospitals for other diseases, though statistics are lacking, sanatorium experience suggests that tuberculosis of the lungs develops with considerable frequency among the members of the nursing staffs of such hospitals, with greater frequency indeed than among the domestic staffs of these hospitals or among the staffs of chest hospitals and sanatoria. I attribute this not to any increased risk of infection from patients, but to the conditions under which the junior nursing staff work and live. The latter have in too many cases unduly long hours on duty, are practically always on their feet, and in addition have to devote hours to study when they are in need of rest or fresh air. Continued fatigue and a generally unhealthy mode of life are here the prime causes of breakdown. Sanatorium nurses on the other hand are in general better fed, have shorter work hours, and live more under open-air conditions.

A proportion of patients in chest hospitals and sanatoria turn out on observation not to be tuberculous. Although they may have been living for considerable periods in close association with infective cases, it would be difficult to find any who have contracted tuberculosis as a result of it. Still more significant is the case of the children, perhaps 400 in all, who have lived with their tuberculous parents in Papworth and Preston Hall Tuberculosis Settlements and among whom we are told no case of tuberculosis of any organ has yet developed. No doubt many, if not most of them, would give a positive skin test with tuberculin, but their expectation of life appears to be no less on that account. There is no evidence here of any "constitutional inferiority" or effect of heredity. They live under conditions which, apart from infection, are hygienically ideal. A healthy mode of life providing an adequate diet, a proper balance between exercise and rest, and a sufficiency of fresh air appears, therefore, in spite of infection, repeated it may be time and again, to protect against tuberculosis.

If even 5 per cent. of samples of milk or cream contain living tubercle bacilli, nearly every child living in rural areas, where pasteurization is rare, must sooner or later ingest tubercle bacilli, usually repeatedly. Yet it is only occasionally that any child suffers thereby, and it seems probable that after the first two or three years of life it is rather some failure of resistance than the mere fact of infection that

¹ JONES, N. W. : *Med Record*, 1900, 58, 285. STRAUSS : *Bull. de l'Acad. de Méd.*, Paris, 1894, 32, 18.

explains the illness. The effect of mere chance, picking out a case here and there, cannot be entertained as an explanation.

Consider the case of the wife of a consumptive man before his disease is recognized. For perhaps several months she shares his home and his bed without any precautions against infection. The infrequency with which she also develops the disease shows how small a part infection plays, even the massive and repeated infection which is to be expected in her case. We are driven to conclude that other factors are more important by pulling the trigger and exploding the charge.

The body defences against tuberculosis are naturally strong in a community like ours, and at certain ages and under certain circumstances are almost impregnable. When they do fail, careful inquiry will usually elicit the presence of one or more breaches of the laws of health. Exactly how they operate we do not know, but it may be through some biochemical fault traceable to a defect in nutrition, or through excessive manufacture or inadequate elimination of some waste product or endocrine substance.

The commonest factor is faulty nutrition. War-time experience proved this fully by the increase of tuberculosis mortality, greatest in blockaded countries, less at home and in neutral countries where supplies were short. When food supplies became normal and the munition factories emptied, the increase disappeared at once. The good feeding and generally open-air life of our own soldiers protected them from any increase in tuberculosis in spite of all their hardships of fatigue and weather. The present period of economic depression has shown no definite increase in tuberculosis mortality in England. The element of strain or fatigue is not operating as when factories are busy and overtime work is common, while the nutrition of the population is still on a good standard, thanks to the low prices of foodstuffs and to unemployment benefit and public assistance relief.

Muscular over-exertion is frequently responsible for the onset of tuberculosis of the lungs just as it is in reactivating disease rendered quiescent by sanatorium treatment. Examples are seen in well-nourished athletes, in manual workers doing heavy work, and in sedentary workers who indulge in some heavy exercise such as gardening, golf, or walking at the week-ends. Allied to this is insufficiency of rest, especially among young adults who ignore fatigue, spend too few hours in bed, and draw heavily on their reserves. Those studying for examinations often belong to this class.

Influenza and bronchitis, subacute or chronic, are diseases very often blamed for the onset of tuberculosis. In a series of 3,456 cases treated in hospitals and sanatoria during 1931,¹ the case histories

¹ SPEAR, B.E. : Personal communication.

record previous attacks of influenza in 992, of pneumonia in 394, of pleurisy in 902, of bronchitis in 764, and of "winter cough" in 1,140. There can be little doubt, in the light of the after-histories, that the great majority of these supposed separate illnesses were tuberculous in nature.

After the war it was common to find pulmonary tuberculosis developing in men who had had prolonged hospital treatment for wounds or their results. Even now quite a number of patients date back their cough or other early symptoms to some surgical operation they have undergone, or to a period of residence in a hospital. This and the high incidence of tuberculosis in mental hospitals suggest that there is something in hospital life which predisposes to tuberculosis. It may well be that the prolonged inactivity of hospital life, in an atmosphere often stagnant and overheated and with a sluggish metabolism, still further lowers a resistance already affected by the ill-health to which treatment is being directed.

BLOOD-PRESSURE IN TUBERCULOSIS.

By JAMES JOHNSTONE,

M.B., CH.B., D.P.H.,

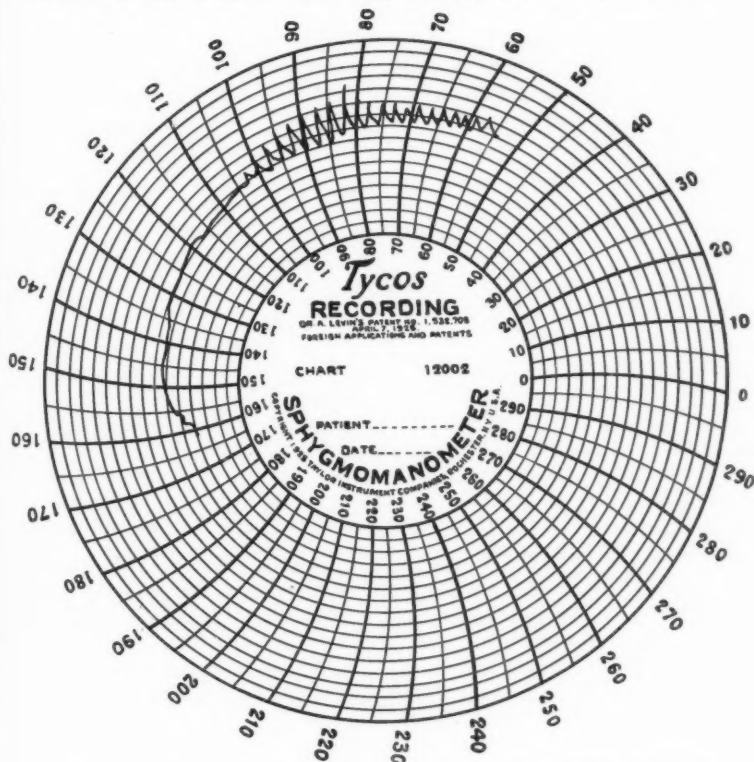
Physician-Superintendent of the Hairmyres Tuberculosis Colony, Lanarkshire.

THE importance of the study of blood-pressure in disease is now receiving careful consideration and, in a condition such as tuberculosis, its value is being more and more realized. Blood-pressure is a mechanical process, and, according to Osler, the pressure with which the blood flows in the arteries depends upon the degree of peripheral resistance and the force of the ventricular contraction. Fishberg states that arterial hypotension is prevalent in the vast majority of tuberculous subjects, this being due, like all other symptoms in tuberculosis, to a toxæmia. An injection of tuberculin is usually followed by a decided fall in the blood-pressure.

At Hairmyres Colony it has been the custom for the last ten years to record the blood-pressure of all adult patients at monthly intervals. We have thus been able to accumulate a very considerable amount of data on which to base our observations.

Regarding the apparatus, we first used the mercury Baumanometer. For the last year or two we have employed the Tycos Recording Sphygmomanometer. A reading taken by this instrument is indicated in the accompanying illustration. They are both excellent instruments, the former having the merit of simplicity. The latter, however, has several advantages over the older auscultatory technique. It is more scientific, eliminating the personal factor and preventing errors due to

any variation in the observer's acuity of hearing. It also gives a permanent record of the blood-pressure tracing, and supplies us with more information than the mere reading of systolic and diastolic blood-pressure, recording as it does the rhythm and strength of the pulse. The estimations were made with the patients sitting, and approximately two hours after a meal. In making our records of the systolic blood-



BLOOD-PRESSURE TRACING FROM A TYPICAL TUBERCULOUS PATIENT.

The patient had a systolic pressure of 103 and a diastolic pressure of 80. The blood-pressure was taken with the Tycos Recording Sphygmomanometer.

pressure we took 100 as our standard figure, and to this was added the age of the patient. Any variation more than five above or below this figure was considered abnormal. The majority of our patients were between the ages of twenty and thirty. The pulmonary cases were classified according to Turban-Gerhardt. In Stage I. the figures did not convey much information beyond the fact that hypertension was not frequent. In Stage II. the same conclusions were reached.

However, in Stage III.—that is to say, in advanced cases—over 70 per cent. had a low blood-pressure. In some cases a systolic pressure as low as 82 mm. of mercury was recorded. We can thus conclude that hypotension is a common feature in advanced pulmonary tuberculosis due, as previously stated, to a toxæmia which probably has caused a dilatation of the peripheral vessels. We all know the picture of the tuberculous patient with the poor physique and the flabby myocardium.

A considerable number of cases suffering from non-pulmonary forms of tuberculosis have been observed, but hypotension was not a characteristic feature of these cases. The reason for this is not very obvious, but it may be due to the fact that their respiratory apparatus is normal. One finds, however, certain individuals suffering from non-tuberculous pulmonary complaints with a low blood-pressure.

The majority of our patients are drawn from the industrial classes, particularly miners, and a large number are affected with fibroid phthisis. It was noticed that this type of case as a rule does not show evidence of hypotension. Stivelman states that this is probably due to arterio-sclerosis of the pulmonary vessels and to the frequent association of chronic bronchitis and emphysema in this type of tuberculosis. From personal observation we are inclined to agree with his conclusions. Tachycardia is one of the cardinal signs of active disease in tuberculosis. It was noticed that this sign was generally associated with arterial hypotension, probably due to the tachycardia diminishing the systolic output of the heart.

Has blood-pressure any significance in diagnosis and prognosis? One has no hesitation in stating that it has considerable value. In cases presenting obscure symptoms and signs of pulmonary tuberculosis with low blood-pressure the diagnosis is simplified. Conversely, except in older people, a high blood-pressure would make the diagnosis of tuberculosis exceedingly doubtful. In prognosis blood-pressure is of even more value. Definite cases with a high or normal blood-pressure generally do well. A marked increase in pressure is also a good sign. On the other hand, a fall in pressure is an unfavourable symptom and generally indicates an extension of the disease. This emphasizes the importance of routine monthly estimations of blood-pressure.

In conclusion, we are of the opinion that the regular recording of blood-pressure in all cases of tuberculosis is of considerable value. However, to obtain the best results it must be correlated with the blood-sedimentation test, X-ray examination, and all the other means that we now have at our disposal.

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THE WORK OF TUBERCULOSIS CARE COMMITTEES.

By MARGARET TALBOT KELLY,

Hon. Secretary of the Standing Conference of Metropolitan Borough Tuberculosis Care Committees.

WHEN the present national scheme for the treatment of tuberculosis was brought into operation in 1914, most people were under the impression that after receiving a period of sanatorium treatment the majority of those suffering from tuberculosis would be able to return to their former employment and lead the life of a normal citizen. Unfortunately this has not proved to be the case, possibly due to the fact that so many of the patients are "advanced cases" by the time they are referred to a tuberculosis officer for treatment. In the metropolitan area we are told that only one-third of the patients admitted for treatment under the London County Council are "early cases," likely to be fit for work on their discharge, the remainder of the beds being occupied by those suffering from extensive disease who will certainly require after-care on their return home.

Tuberculosis Care Committees have been established in many parts of the country, but it is with those in the metropolitan area that I am immediately concerned, and for whose endeavours I wish to invite sympathy and support. London is such a huge area that it must necessarily differ from the provinces, where all the health services can be immediately under one authority. And so, while the London Care Committees perform certain functions on behalf of the London County Council, they are for the most part administered by the borough councils, many of them requiring the services of a full-time secretary.

A recent enquiry conducted by the Standing Conference of Metropolitan Borough Tuberculosis Care Committees showed that very few were constituted in the same way, though in nearly every case the membership consisted of representatives of the borough councils and local organizations, through whose co-operation much overlapping can be avoided. In certain districts the Committees have raised voluntary funds to assist them in their work of relieving distress, but it is more generally thought that existing organizations should be used, the Care Committees being the means by which grants or other forms of assistance can be obtained.

The primary duty of a Care Committee, in my opinion, should be that of a friend to the whole family of the tuberculous person, for I think that all who are engaged in this work will agree that the family must be regarded as the unit, and not the individual patient. An illness which so often causes permanent disablement may also

seriously affect the financial circumstances of the family, and in helping the members to readjust their lives to suit these changed conditions the Care Committees can play an important part. In London a second duty falls on the Committees—that of enquiring into the economic resources of the family for the purpose of the assessment of voluntary contributions. Whether this be advocated or not it affords the Committees an opportunity of estimating the best means of assisting the patients referred in this way, and where contributions are collected, of ascertaining at once any change in their financial circumstances. Uniformity in the assessment of contributions is assured by the ultimate decision resting with the London County Council, to whom all recommendations are made, and who urge on the Committees the importance of maintaining the family's standard of living.

Much of the Committees' time must be taken up with the consideration of means for the provision of extra nourishment or clothing for the patient, with making arrangements for the care of the children while the mother is away, enquiries into insurance problems, or the provision of special treatment when perhaps the patients are not eligible for help from public funds. In fulfilling these duties the greatest co-operation must be maintained between the Committees and the medical and nursing staffs of the dispensary system, without which any scheme for the improvement of the family conditions cannot hope to succeed.

The greatest problem of all, however, is that of unemployment, the fear of which causes so many patients to refrain from accepting the benefits available until too late, and which, under present conditions, is almost the inevitable outcome of a spell of sanatorium treatment. In a few isolated cases the problem can be solved by such tuberculosis colonies as have been established at Papworth and Preston Hall, but out of the four thousand odd adult patients treated annually by the London County Council, only a very small proportion can hope to become colonists, even if physically and mentally suited; and it must be remembered that unless a patient has the right spirit and co-operates wholeheartedly in the scheme, all efforts at colonization are useless.

Nothing can be more disheartening than for patients to return from sanatoria, full of hope and renewed strength, to find their former employment closed to them, either from the fear of infection by their employers or fellow workers, or from the general economic conditions now prevailing; and nothing can so quickly undo the benefits they have derived from treatment as this enforced idleness and the feeling that they are of no further use in the industrial world. To meet this need a scheme for the organization of handicrafts classes was originated some years ago, and there are now thirteen boroughs in which such classes are being conducted. These are regarded essentially as an aid to treatment, and are not run on a commercial basis, though by

enabling the patients to earn sufficient to supply their own comforts they are a means of restoring self-respect.

To assist in the sale of articles made at the classes, and to make the work more generally known, the Standing Conference, which is representative of nearly all the Care Committees in London, has for the past three years organized an Exhibition and Sale of Handicrafts, which by the kindness of the Master and Court of the Carpenters' Company has been held at their hall in Throgmorton Avenue, the opening ceremony on each occasion being performed by the Lord Mayor of London.

For the first venture in 1930 the co-operation of Preston Hall and the Spero Leather Workers was sought, when the total sales amounted to £160 10s., those of the classes being £82 10s. 5d. In 1931 the work of the classes had considerably increased, and the experiment of confining the exhibition to their goods alone resulted in £174 17s. 2d. from sales and orders, the exhibition remaining open for two days. Last month a similar sale was held, and the total of sales and orders shows an increase, the amount raised being £212 1s. 10d.

This is a step in the right direction, but in some districts it may not be possible to organize classes, and some other scheme, more suitable to the locality, must be thought out to combat the depression which so easily gets hold of patients unfit for work. Certain Committees have started "home libraries," and in yet another borough the men have been given allotments to work on. But all such developments must necessarily increase the work of the Committees, and must depend largely on enthusiasm and local support for their success, while friendly rivalry can be stimulated by such efforts as the annual exhibition described above.

The Standing Conference of Metropolitan Borough Tuberculosis Care Committees, which meets twice a year at the County Hall, affords an opportunity to the secretaries and other representatives appointed to attend of discussing their mutual difficulties, and benefiting by the experience of their colleagues actively engaged in the work. While each Committee must function as its local requirements demand, there can at least be one aim for all—that of alleviating the sufferings of the tuberculous, and of restoring them to the position of useful members of society.

AN IMPRESSION OF THE EIGHTEENTH ANNUAL CONFERENCE OF THE NATIONAL ASSOCIATION FOR THE PREVEN- TION OF TUBERCULOSIS.

By MARY F. NANNETTI,

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THE eighteenth Annual Conference of the National Association for the Prevention of Tuberculosis held in London on July 21 and 22, 1932, was of special interest: it coincided with the jubilee of the discovery of the tubercle bacillus by Professor Robert Koch in 1882. The meetings were held in the Great Hall of University College. The chair was occupied by Sir Arthur Stanley, ably supported by Sir Robert Philip, and in the body of the hall about 400 members were accommodated.

The Conference was opened by Sir Arthur Robinson, Secretary to the Ministry of Health, who spoke of the battle against disease, and hoped that the vigorous action taken in regard to tuberculosis was causing the enemy to retreat. The first thing aimed at in the Ministry of Health was to educate the public. The public must understand that tuberculosis is largely a disease of ignorance, and learn that means are available for its diagnosis and treatment.

Dr. R. A. Young spoke on "The Influence of the Discovery of the Tuberculosis Bacillus by Koch." In his interesting paper he gave a résumé of Koch's life and work, showing how he established "Koch's Postulates," which are now recognized as essentials foundatory of research. Koch with the simplest of materials devised methods which are in use today—*e.g.*, "Hanging drop," the obtaining of pure cultures, and the employment of solid instead of liquid media to separate individual strains. Koch first demonstrated the tubercle bacillus at a meeting of the Berlin Physiological Society on March 24, 1882. It is fitting that the association which owes its existence to Koch's discovery and is devoted to the prevention of tuberculosis should pay a special tribute to his memory fifty years after tuberculosis was shown to be an infective disease communicable from person to person. The recognition of the nature of tuberculosis has altered the attitude of the doctor to the patient affected by the disease; prevention is now aimed at, and arrest of the disease in early cases is possible. Sir Robert Philip's work in connection with this has achieved world-wide recognition. In regard to the use of tuberculin in prevention and treatment

and Koch's statement that bovine tuberculosis infection was not communicable to man, further research showed that Koch was mistaken.

Dr. Charles White of Washington, U.S.A., brought "greetings" from across the water, and wished to pay homage to the Association. He pictured the achievements of Koch, and referred to Sir Robert Philip as the "Father of the Tuberculosis Dispensary," commending his methods as capable of handling every phase of the tuberculosis problem. He also referred to Dr. Herman Biggs as the "Father of Compulsory Notification," and the discoverer of the importance of house infection.

Sir Henry Gauvain gave a luminous address on the surgical aspect of tuberculosis and the influence of Koch's discovery on treatment. Owing to extensive operations in tuberculous cases there were deplorable orthopaedic results. After Koch's discovery, a less radical surgical period followed with the two essentials: rest of the affected part, and general building up of the body tissues. Surgically Koch proved (1) the infective nature of the disease, (2) the great resisting power of the tubercle bacillus, and (3) described the pathological manifestations. As far back as 1797 rest and sea air were considered important, but it was Koch's discovery that gave the reasons for these lines of treatment. Koch's teaching opened the door to golden discoveries, not the least of which are appreciation of "Nature's" own aids to cure: rest, good food, clean living, personal cleanliness, fresh air, and sunlight.

The afternoon session was opened by Dr. F. J. H. Coutts with a paper on "The Protection of the Young Adult against Tuberculosis." His conclusions were: (1) That in the age group fifteen to twenty-five years tuberculosis is often very serious, rapid, and fatal; (2) this is a catastrophe both from the standpoint of the individual and the community; (3) while at other ages there has been a progressive diminution in mortality from respiratory tuberculosis, the rate of decline in the ages fifteen to twenty-five is tending to lag behind. In Scandinavian countries this has been found specially in females, where there is a massive tuberculosis infection in the young adult exposed to the new risks of occupational life. Various explanations have been advanced as to the cause: The effects of the Great War, various physiological factors such as in connection with under-nourishment, the recent fad for slimming, and the fact that more females are now employed in industry. Reference was also made to the change in habits and the increase of smoking, addiction to cocktails, and search for excitement. An important factor is "immunity," as a proportion of the community now escape tuberculosis in childhood, and are first affected in adolescence. To combat this menace preventive vaccination is necessary in some form: BCG has been tried. Early diagnosis and adequate treatment

with rest in bed are necessary to minimize risks. Dr. Noel Bardwell showed that "statistical evidence" supported Dr. Coutts's impressions. He thought some subjects are unable to cope with circumstances owing to some inherent lack of resistance, strain and stress of competition. For protection, unfavourable factors must be eliminated, and education regarding tuberculosis and how to avoid it provided for the young worker in a tactful way. Dr. Melville Dunlop advocated open-air schools for all children, open spaces and proper diet. Dr. Watt pointed out that bacteriologists concentrated their efforts on the avoidance of the infection. Clinicians are more impressed with the state of patients' defences, they know that if the general condition is built up the disease may be kept in check; he advocated teaching the young how to live in a healthy way. "Bad housing has less to do with tuberculosis than bad habits." Dr. Heaf thought the young adult started with a balance of resistance on the side of disease: food supply was deficient having regard to energy output. If parents lead an un-restful life, children will follow suit. To reduce the speed of life is a social quest in which all can take part. Dr. McPhail emphasized the practical part the tuberculosis colony plays in the protection of the young adult.

The need for continuity of care in tuberculosis was dealt with from every possible aspect. Miss E. McGaw introduced the subject, and quoted Sir Robert Philip that "he who would fight tuberculosis must study it, not only in the individual case, but in its own breeding grounds." She spoke of the value of dispensary treatment and showed how continuing care in tuberculosis is one of the best ways of working for the health and stability of the nation. Dr. Septimus Walker spoke of the "danger periods" in the life of infected persons, to bridge over which the "care" organizations must always be prepared, or better still, anticipate. Miss Marx was interesting from her point of view as lady almoner of Brompton Hospital. Dr. Rowland would like to arrange a scheme whereby the tuberculosis patient may in time be self-supporting. Councillor W. Taylor would have the personnel of "care committees" include the M.O.H. and tuberculosis officer, with voluntary workers representing every phase of social, charitable, and educational work. To obtain best results care-work must be continuous: patients safely in the sanatorium must be convinced that there are a band of people who are ready to help them out of their difficulties either during or after their treatment. Help of employers should be enlisted, and by co-operation suitable jobs for the ex-patients found. The National Association has given willing help in connection with training. Mrs. Anderton described the Convalescent Home in West Mersea, where "contacts" (children) are sent for two-monthly periods.

At the close of the conference there was a brief business meeting

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with reports from Dr. F C. Bradbury on the Tyneside enquiry, Dr. A. H. Macpherson on Burrow Hill Colony, and Dr. H. Williams on the Educational Campaign.

On the afternoon of Thursday, July 21, an interesting social function took place in the famous Guildhall. Delegates were received and welcomed by the Deputy Lord Mayor. On Saturday, July 23, opportunity was given to delegates to visit Queen Mary's Hospital for Children at Carshalton, and the National Institute for Research in Dairying, Shinfield, near Reading.

ASSOCIATIONS AND INSTITUTIONS.

NEW HOSPITAL FOR TUBERCULOUS WOMEN, PAPWORTH.

SIR PENDRILL VARRIER-JONES, M.A., M.R.C.P., Medical Director of the Papworth Village Settlement, has kindly favoured us with the following account of the recently added unit at Papworth.



GENERAL VIEW OF SOUTH FRONT WITH LAKE IN THE FOREGROUND,
IN WHICH REFLECTION OF HOSPITAL IS SHOWN.

The new hospital for women at Papworth was opened by Her Royal Highness the Duchess of York on July 8, 1932. The foundation stone was laid by the Right Hon. Arthur Greenwood on May 19, 1931, when Minister of Health. The hospital is situated on the north side of the lake in the grounds of Papworth Hall and faces south, so that patients look across the lake towards the lawns and copses which are beyond. All the rooms have a very attractive view. Every room is constructed to serve as a sun-trap; outside each is a wide verandah, on to which, on fine days, bed-patients may easily be moved through the French windows. The hospital consists of two wings set at an obtuse angle to the central block. There is accommodation for sixty two female patients placed in single or double rooms. At intervals in the main building there are small, comfortable sitting-rooms, with

dining-room adjacent, for ambulant cases. This, like the tiled kitchen, is situated on the north side of the hospital, connected with the patients' rooms by means of wide corridors. The hospital has two floors, the ground and first, and there is a lift large enough to carry stretcher cases; this is conveniently placed near the entrance door on the north front. Special bedside cabinets, designed by the Matron and manufactured by Papworth Industries, are to be found in each patient's room. The curtains, eiderdowns, and bedspreads are of varying colours—some pink, others blue, and so on—the whole effect being most



VIEW FROM FIRST-FLOOR VERANDAH.

attractive. The all-in cost per bed amounted to £250, an unusually low and reasonable outlay. The hospital was designed, built, equipped, and furnished by Papworth Industries, and contains all the features which experience has shown to be desirable for the comfort and care of tuberculous women patients.

NOTICES OF BOOKS.

CONTINENTAL WORKS ON TUBERCULOSIS.

DR. J. STÉPHANI of Montana and Dr. M. Marchal of Paris, in their recent book on the radiological aspects of pulmonary tuberculosis in its early stages, have given to those who are specially interested in this subject one of the most stimulating accounts which it has been our good fortune to read.¹ The first part of the book deals mainly with questions of technique, and the authors have taken the utmost pains to expound their criteria of a good skiagram, and to lay down the conditions which they regard as essential for obtaining a really satisfactory and informative X-ray of the chest. They have devoted a good deal of space to the subject of the normal limits of variation, and their observations are illustrated by a series of most interesting and original diagrams. The second part of the book contains a very complete and detailed account of the different radiological and anatomical forms of the disease, together with the views of the authors as to the relation of these forms to pathogenesis. There is little doubt that early and accurate radiological examination of the chest constitutes one of the most important factors in any advance that is likely to be made in our knowledge of such a vital subject as that of pulmonary tuberculosis. In our opinion this book is a genuine contribution to medical literature, and one which will repay careful study by any who are concerned with this branch of medicine. It bears the hall-marks of experience, diligence, and originality, and should be read alike by radiologists and clinicians who have made pulmonary tuberculosis an object of special study. Dr. Stéphani and Dr. Marchal are to be heartily congratulated on their success in having produced a most useful, fascinating, and live piece of work.

MAURICE DAVIDSON, M.D., F.R.C.P.

Dr. Jean Lardanchet's recently issued work is largely an account of the practice of thoracoplasty at Hauteville, where treatment has been under the direction of Professor Berard and Doctor Dumarest.² Chapters are devoted to the historical aspect, operative indications and contra-indications, pre operative preparation, and operative technique. A tabulated account of the results of thoracoplasty in 132 cases of pulmonary and pleural tuberculosis is given. In the pulmonary group, consisting of 99 patients, positive results were obtained in 62 per cent., no appreciable change in 23 per cent., and in 14 per cent. they were bad. It is to be noted that the mortality was 11 per

¹ "Le Diagnostic Radiologique de la Tuberculose Pulmonaire au début." Par J. Stéphani de Montana et M. Marchal, Assistant de Radiologie des Hôpitaux de Paris. Préface du Professeur Bezançon. Pp. xvii+250, avec 93 figures. Paris: N. Maloine, 27, Rue de l'Ecole-de-Médecine. 1932. Price 40 fr.

² "De la Thoracoplasty chez les Tuberculeux: Les Indications pulmonaires et les Indications pleurales." Par Jean Lardanchet. Pp. 214. Paris: G. Doin et Cie, 5, Place de l'Odéon. 1932. Price 50 fr.

cent. in "the first three weeks, and it is of interest to remark that the results, both early and late, were better in women than in men. In the pleural cases, 33 in number, improvement was obtained in 57 per cent., 21 per cent. were unchanged, and in 21 per cent. the results were bad. The localized operation, as a solitary measure, is condemned, but some of them are advocated as complementary to the more generalized operations in selected cases. For instance, to produce apical collapse, posterior resection of the whole of the first rib and sub-total resection of the second is advocated, more especially where there is a large cavity present. The value of resection of the upper seven or eight ribs, preceded by phrenicectomy, is illustrated by seven cases, which are recorded in detail, and in these the results are very good. Dr. Lardanchet's monograph is a serviceable addition to a library of works dealing with the surgical treatment of pulmonary tuberculosis. The book gives an excellent general account of the position of thoracoplasty today, is well illustrated and clearly printed, and the case records included form a useful guide to the indications for the various types of operations which they respectively illustrate.

A. TUDOR EDWARDS, M.Ch., F.R.C.S.

Drs. Jacques Stéphan and Georges Delore have produced an excellent monograph dealing with measures for the treatment of tuberculous cavities.¹ It is adorned by good skiagrams and the now well-known and delightful sketches by Dr. Stéphan, illustrating radiographic appearances. The authors prove that certain cavities can be completely cured by climatic and medicinal treatment, a fact which it is desirable to emphasize frequently as ignorance of it may lead to unnecessary interference by the inexperienced. They point out that in the pre-X-ray era the existence of cavities was greatly underestimated because they may be completely "silent," giving rise to no definite physical signs, a fact which some teachers of medicine have yet to learn. Two types of cavity are described—the round and the flat. The former more often gives rise to thick nummular sputum. Radiologically the area occupied by the cavities is clearer than the surrounding parenchyma, and little or no lung parenchyma can be seen in the circular area. The antero-posterior and lateral diameters with this form of cavity is approximately equal. With the flat cavity, the pattern of the lung can be seen within it, so that the annular shadow is hardly clearer than the surrounding parenchyma. Again, when rotating the patient, the round cavity retains its shape, while the "flat" cavity loses it and becomes unrecognizable. It is the "flat" cavity that, according to the authors, is most amenable to climatic and medicinal treatment. In deciding the line of therapeutic approach, the size, the age, and the type of cavity should be taken into consideration. If further treatment is necessary, artificial pneumothorax should not be long postponed, for the authors hold that early pneumothorax treatment gives much better results than late treatment. They maintain that every effort should be made to close cavities, for even if apparently dry or encysted—that is, having no apparent communication

¹ "Traitement des Cavernes Pulmonaires Tuberculeuses: Cure Climatique seule ou combinée avec le Pneumothorax Artificiel." Par Jacques Stéphan et Georges Delore. Pp. 60, avec 41 figs. Paris: G. Doin et Cie, 5, Place de l'Odéon. Price 18 fr.

with a bronchus—they are a potential source of danger. If adhesions prevent their healing, then the Jacobæus operation for severing them is advocated. For giant cavities, phrenic evulsion is recommended, which may succeed by itself, or, if not, be a preliminary to some plastic procedure. In the authors' opinion, they should not be treated by medical means or even pneumothorax. The medical treatment advocated is by the use of gold salts, benzoate of copper, or calcium gluconate. There is much of great interest and value in this brochure, to which the above short description does scant justice.

F. G. CHANDLER, M.A., M.D., F.R.C.P.

Dr. Weck in the first part of his book discusses the results in cases of pneumothorax of re-expansion of the lung, which may occur spontaneously by the gradual spread of adherence between the visceral and parietal pleura, or be obtained voluntarily by stopping the refills.¹ In the second part the effect of pneumothorax on fifty-one patients treated over a period of from two to nineteen years is described. The results obtained are excellent, and a considerable proportion of the cures are maintained over a period of many years. It is interesting to note how well many patients remain after the pneumothorax cavity has become obliterated by the adherence between the two layers of pleura. In fourteen cases the pneumothorax was maintained for from four to seven years, and in one case between eight and ten years. The author thinks that the treatment should not be kept up for more than four or five years, and points out that there are definite dangers in maintaining the pneumothorax for too long a time. The book will be read with great appreciation by those interested in the subject.

L. S. T. BURRELL, M.D., F.R.C.P.

Dr. André Alibert has written a small monograph on the phenomena of pulmonary tuberculosis in adolescents which will be of value to clinicians.² Out of a total number of 743 cases, he has taken 625 between the ages of twelve and nineteen on which to base his conclusions. The different clinical varieties are well arranged and described, and detailed notes are given of 74 of these cases. At the end of the book are reproductions of eleven radiograms illustrating some important points in the radiology of the subject. These X-rays are especially interesting, and excite a desire on the part of the reader to see many more of the author's series. Dr. Alibert makes no claim to original discoveries, but he has dealt faithfully with all the important aspects of adolescent tuberculosis—*e.g.*, general statistics, predisposing causes, initial manifestation, primary infection, and so forth. We are especially interested in his observations on benign forms of the disease, to which reference has lately been made by some of the American authors, and which are of importance in relation to the so-called epituberculous lesions. The whole question of the early diagnosis of young adult

¹ "Effets Éloignés du Pneumothorax Thérapeutique: Étude Sémiologique de la Résorption des Conséquences et des Résultats Éloignés du Pneumothorax Artificiel." By Dr. L. de Weck, Médecin-Chef du Sanatorium Victoria (Montana). Preface by Dr. Burnand. Pp. 129. Paris: Masson et Cie. 1932. Price 16 frs.

² "La Tuberculose Pulmonaire de l'Adolescent." Par Dr. André Alibert, Ancien Interne des Hôpitaux de Paris. Preface du Docteur A. Courcoux. Pp. 180, and 11 plates. Paris: N. Maloine, 27, Rue de l'École-de-Médecin. 1932. Price 25 fr.

tuberculosis is still one of extreme difficulty, and we welcome Dr. Alibert's contribution as one which makes interesting reading, and is a useful work of reference to those who are endeavouring to piece together the existing fragments of our knowledge of this subject.

MAURICE DAVIDSON, M.D., F.R.C.P.

Dr. Van Beneden has published a pamphlet giving the fruits of six years' researches regarding the existence and action of a filterable virus of tuberculous infections.¹ He furnishes a full summary of the findings of other workers on this and allied subjects. The author has taken special pains to investigate the subject of the hereditary influence of the tuberculous mother and the possibility of the transplacental passage of the filterable virus from mother to offspring. His conclusion that further research along the lines he has adopted is indicated seems justifiable.

ROSE JORDAN, M.D., D.P.H.

Drs. G. Derscheid and P. Toussaint, of the Sanatoria "Les Pins" at La Hulpe-Waterloo, Belgium, have published in the series of handbooks, "*La Pratique Médicale Illustrée*," a careful summary of indications for surgical intervention in cases of pulmonary tuberculosis.² Where surgery is called for, artificial pneumothorax is considered the method of choice, accompanied or not by phrenectomy. Only where this method fails, and in cases of unilateral tuberculosis uncomplicated by diseases of other organs, should thoracoplasty be undertaken. Complications after operative treatment are described, and the necessity of radiographic supervision is emphasized. The personal experience of the authors cannot fail to be of interest to those carrying out surgical treatment of the thorax.

ROSE JORDAN, M.D., D.P.H.

Dr. Dumarest has published in the collection of "*Hygiène et Diététique*," consisting of manuals issued under the general editorship of Dr. E. Schulmann, an excellent practical guide to personal hygiene for the subjects of tuberculous disease.³ It affords in succinct form clear instructions regarding general hygienic measures; the conduct of an open-air life; regulation of rest, exercise, and work; dietetic considerations; and morale. There is a good section on the rôle of the sanatorium, and helpful suggestions are presented regarding convalescence, after-care, profession, residence, marriage, military service, and prophylactic measures.

Professor Hanns Alexander and Dr. Kurt Alexander have produced an instructive and finely illustrated guide to occupation-therapy, which we commend to the attention of all who in this and other countries are responsible for the organization and conduct of work schemes in con-

¹ "*Recherches sur L'Infection, L'Hypersensibilité et L'Immunité vis-à-vis des Formes Virulentes ou Atténuées du Virus Tuberculeux*." Par Dr. Jean van Beneden, Chef des Travaux des Laboratoires de Bactériologie et d'Hygiène de l'Université de Liège. Pp. 136 avec 14 figs. Paris: Masson et Cie, 120, Boulevard Saint-Germain. 1932. Price 25 fr.

² "*Indications de la Chirurgie Thoracique dans le Traitement de la Tuberculose Pulmonaire*." Par G. Derscheid et P. Toussaint. Pp. 40 avec 6 planches. Paris: G. Doin et Cie, 8, Place de l'Odéon. 1932. Price 16 fr.

³ "*La Vie Hygiénique du Tuberculeux*." By F. Dumarest, Médecin-Chef du Sanatorium F. Mangini, à Hauteville (Ain). Pp. vi + 118. Paris: G. Doin et Cie, 8, Place de l'Odéon. 1932. Price 12 frs.

nection with sanatoria for pulmonary cases.¹ Medical advisers who do not read German should nevertheless secure a copy of this notable monograph, for it is plentifully illustrated with a collection of photographs which admirably illustrate various forms of work which are being successfully carried out at Leysin and in various institutions in Switzerland, Holland, and elsewhere, and particularly in the sanatorium situated at Agra bei Lugano. We hope Messrs. Thieme will see their way to arrange for the issue of an English edition.

Dr. John E. Kuhne has issued an admirable manual in French dealing with hygiene and medicine and therapeutic methods in tropical regions.² It will be of much service to those who in connection with medical missions and sanitary and prophylactic agencies in tropical lands are seeking to serve afflicted humanity.

ORTHOPÆDICS.

Works on orthopædics are always of special interest to students of tuberculosis. Several important volumes have recently been published. Mr. Mercer, of Edinburgh, has produced what, if we mistake not, will long remain the standard British textbook on orthopædics.³ It has apparently developed out of his courses of lectures and demonstrations to students and graduates at the Edinburgh Royal Infirmary, and it manifestly expresses, as Professor Fraser declares, the considered opinions of many years of practical experience. This work has the advantage of having been written by a comparatively young man who has won his spurs as a general surgeon and is not restricted to the necessarily limited outlook of a specialist in orthopædics. This department of surgery is still in the making, and theories vary, technique differs, and opinions not infrequently are conflicting. But Mr. Mercer is judicious and discerning, and deals effectively with views old and new. Operations are described in sufficient detail to enable young surgeons to undertake the necessary technique with confidence and success. We specially commend this work to all who have to deal with defects and deformities of every kind as met with in early life. We would advise tuberculosis officers and all responsible for cases of so-called surgical tuberculosis to study Mr. Mercer's work. There are excellent chapters devoted to the consideration of tuberculosis of bones and joints, maladies which ravage childhood and lead to calamitous crippling. These chapters are effectively illustrated. The account of tuberculous disease of the vertebral column is particularly admirable and accompanied by helpful illustrations and radiographs, with figures indicating methods of treatment. The chapters dealing with tuberculous

¹ "Die Arbeitsbehandlung: Zur Reform der Lungenheilstätten." By Professor Dr. Hanns Alexander, Chefarzt des Sanatoriums Agra and Kurt Alexander Volkswirt. Pp. 100, with 44 illustrations. Leipzig: Georg Thieme, 15-19, Antonstrasse. 1932. Price M. 5.

² "Manuel d'Hygiène et de Médecine Tropicales." By Docteur John E. Kuhne, M.D. Edin., Médecin Diplômé Suisse; 20 ans Médecin-Missionnaire en China Méridionale. Pp. 238, with 153 illustrations. Geneva: Editions Labor Société Co-opérative Romande, 4, Rue de l'Athénée. 1932. Price .

³ "Orthopædic Surgery." By Walter Mercer, M.B., Ch.B., F.R.C.S.E., F.R.S.E., Assistant Surgeon, Royal Infirmary, Edinburgh, etc. With a Foreword by John Fraser, M.C., M.D., Ch.M., F.R.C.S.E., Regius Professor of Clinical Surgery in the University of Edinburgh. Pp. xi+695, with 171 figs. London: Edward Arnold and Co., 41 and 43, Maddox Street, W. 1. 1932. Price 32s. 6d.

lesions form a veritable monograph, and some day, perhaps, the author may be induced to issue this portion in an extended form as a separate volume. Mr. Mercer's work is a great achievement. No student of present-day orthopædics can afford to neglect it. There is a serviceable select bibliography. The work is in every way admirably produced, and publishers have loyally co-operated with the author in making it a notable production.

Mr. R. Brooke's short, condensed, serviceable handbook on orthopædic surgery was prepared at the suggestion of the masseuses attached to the orthopædic department of the Royal West Sussex Hospital, and is intended for their use and for house surgeons and those who in hospitals, clinics, and general practice desire information and guidance regarding orthopædic principles and lines of practice.¹ The work is apparently the outcome of orthopædic experience particularly met with among children in rural cripple centres. The subject-matter is effectively arranged according to regions, and deals mainly with disorders of joints and bones. There is a chapter on affections involving the neck, and another devoted to deformities connected with the spine and pelvis. The concluding sections afford practical guidance as to arthroplasty and arrangements for amputations, and the conduct of plaster-of-Paris technique. The sections dealing with tuberculous lesions involving ankle, elbow, hip, knee, sacro-iliac joint, shoulder, spine, wrist and hand are all excellent. Special features of Mr. Brooke's attractive manual which merit praise are the carefully selected and really instructive illustrations. The publishers have issued the volume in first-class form.

Dr. W. L. Sneed's handbook on orthopædics in childhood is a member of the "Everyday Practice Series," edited by Dr. Harlow Brooks.² It has been prepared primarily for the guidance of general practitioners, who are usually the first to have the opportunity to detect abnormalities or to advise parents in regard to deformities and deviations from the normal met with in early life. Simple methods are described whereby pediatricians, general practitioners, mothers and nurses may render effective service. The author is of opinion that the pendulum has swung too far in the direction of operative measures for many cases, and he believes that under earlier and more careful observation and care many deformities might be prevented. The substance of the volume is effectively presented, mainly according to regions. There is a short but good chapter on tuberculosis in children, where it is urged that conservative non-operative treatment should if possible be the method of choice, and where ankylosis is likely to occur special consideration must be given to position. The volume is generously illustrated, and the front of the cover most artistically reproduces the noted "summa magistri" by Johannis De Santo Geminiano, Order of Preaching Brothers, published in Basle, Switzerland, by Froben and John Petri in 1499. Orthopædists of all schools should welcome this volume to their collection of orthopædic works.

¹ "A Shorter Orthopædic Surgery." By R. Brooke, M.S., F.R.C.S., Hon. Orthopædic Surgeon, Royal West Sussex Hospital. Pp. 150, with 126 illustrations. Bristol: John Wright and Sons, Ltd. 1932. Price 10s. 6d.

² "Orthopædics in Childhood." By William L. Sneed, M.D., Attending Surgeon, Hospital for the Relief of the Ruptured and Crippled, Fifth Avenue Hospital, New York City. Pp. xviii + 318, with 145 illustrations. London: J. B. Lippincott Company, 16, John Street, Adelphi, W.C. 2. 1932. Price 21s.

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MANUALS FOR MEDICAL ADVISERS AND WORKS
OF REFERENCE.

A third and thoroughly up-to-date edition of the fine work edited by Dr. A. Logan Turner is now available.¹ It is the most comprehensive, complete, and generally serviceable handbook of its kind, and admirably meets the requirements of the general practitioner and senior student. The publishers have issued the work in a worthy form, beautifully printed on art paper and generously illustrated, a number of the plates being excellent examples of scientific colour printing. The first edition of the work on its present lines, succeeding the third edition of Dr. W. G. Porter's volume on the same subject, was published in 1924. In the present edition valuable new matter appears, including a description of the physiology of the otolith apparatus and its relation to clinical investigation. The sections dealing with tuberculous affections are excellent. A lengthy account is given of phthisis laryngea with instructive illustrations. An account is given of lupus of the larynx. There is also a helpful account of tuberculosis of the middle ear with accompanying illustrations. Attention is directed to the chronic retropharyngeal abscess, the result of tuberculosis of the cervical vertebræ. The appendix contains an excellent series of formulæ. We would strongly advise tuberculosis officers and medical superintendents of sanatoria to procure and study this exceptionally fine handbook. All who have collaborated in its production are to be congratulated.

Dr. John Cope has issued a lengthy and masterly monograph bearing the following explanatory sub-title: "The Nature, Causes, and Prevention of Cancer, especially in its Relation to Civilization and Degeneration."² The author has manifestly devoted much time and thought to the study of the literature of malignant disease, and his book furnishes a complete, lucidly expressed, scientific presentation of our present knowledge regarding cancer and other forms of malignant disease, and the causal factors connected with the development of these pathological states. The book is divided into two parts: the first deals with all the aspects of the cancer problem, while the second is given up to a consideration of degeneration in its national aspects. Such knowledge regarding cancer as we possess is mainly the outcome of the investigations and experience of clinicians of bygone times. Recent researches, seeking to unmask the mystery of cancer, have, for the most part, led us up blind roads. Much painstaking research, entailing labour, time, and expense, carried out in a spirit of optimism, has, so far, failed to furnish results of practical value. Dr. Cope's work indicates lines of enquiry which, in the enthusiasm of today for experiments on animals and other laboratory researches, have been

¹ "Diseases of the Nose, Throat and Ear: For Practitioners and Students." Edited by A. Logan Turner, M.D., LL.D., F.R.C.S.E., Consulting Surgeon, Ear and Throat Department, Royal Infirmary, Edinburgh. With the collaboration of J. S. Fraser, M.B., F.R.C.S.E., J. D. Lithgow, M.B., F.R.C.S.E., W. T. Gardiner, M.C., M.B., F.R.C.S.E., G. Ewart Martin, M.B., F.R.C.S.E., and Douglas Guthrie, M.D., F.R.C.S.E. Third edition, revised and enlarged. Pp. xxvi+490, with 250 text illustrations and 19 plates (of which 8 are in colour). Bristol: John Wright and Sons, Ltd. 1932. Price 20s.

² "Cancer: Civilization: Degeneration." By John Cope. Pp. xvii+293, with 55 illustrations. London: H. K. Lewis and Co., Ltd. 1932. Price 15s.

almost neglected. It sets forth in a fascinating fashion facts, inferences, suggestions, and speculations relating to the ætiology, nature, signs and symptoms, antecedents, hereditary influences, and the rôle of civilization in the production of those departures from normal growth and development which collectively we term cancer. The most illuminating chapters of Dr. Cope's comprehensive and stimulating monograph are those which deal with degeneration and pre-degeneration—agencies making for resistance against degenerating tendencies, and the prevention of malignancy. The book is one which no student of the cancer problem can afford to neglect, and it should be read in its entirety without bias or prejudice. There is much in Dr. Cope's monumental work which makes it a unique contribution to medical science. It offers an explanation of the cancer problem so simple, so much in harmony with known biological truths, and, at the same time, so comprehensive, that it seems to satisfy all the requirements of a real solution. It very definitely deserves the earnest attention of all students of cancer. Incidentally the book contains material which should be known to all who are interested in the tuberculosis problem. Indeed, we are of opinion that one of its most valuable features is its concentration on factors bearing not only on cancer, but on medico-sociological problems of today.

Dr. E. W. Caryl Thomas has prepared a valuable epitome of public health for the excellent Synopsis Series issued by Messrs. John Wright and Sons of Bristol.¹ The work has been prepared to assist students working for their Diploma in Public Health or for a Degree in State Medicine or Sanitary Science. It is certainly a worthy companion to the other members of the popular Synopsis Series, which it closely resembles in its general form and arrangement. A special feature of the volume is the convenient dividing up of sanitary law into sections which are included in the appropriate chapters. A helpful bibliography is appended to each chapter. The whole volume is arranged in twenty-two chapters. Tuberculosis is dealt with in the section in which communicable diseases conveyed by droplet infection are considered. This account extends over seventeen pages, and is an excellent summary of all points relating to tuberculosis which should be known by medical officers of health.

Dr. S. L. Piplani, who considers himself "somewhat of a free-lance in the field of phthysiology," has produced what he calls a "semi-technical exposition" of pulmonary tuberculosis in a form which, while of interest to all dealing with this class of case, will be of special service to medical practitioners in the author's own country of India.² The work is divided into two parts: the first presents a physiological introduction and a general description of the disease with an account of the various views relating to its causation, nature, manifestations, diagnosis, and theories of immunity; the second part expounds principles of the hygienic management of consumptives, the use of sanocrysin and special drugs, institutional care, the employment of tuber-

¹ "A Synopsis of Public Health" By E. W. Caryl Thomas, M.D., B.Sc., D.Ph., Barrister-at-Law, Medical Officer of Health for Dagenham, Essex. Pp. vii + 646. Bristol: John Wright and Sons, Ltd. 1932. Price 21s.

² "Tuberculosis of the Lungs: A Semi-popular Study of the Disease and its Treatment." By S. L. Piplani, B.Sc. With the assistance of J. N. Piplani, M.B., B.S. (Punjab), D.O.M.S. (London). Pp. v + 205, with 20 figs. London: John Bale, Sons and Danielsson, Ltd., 83-91, Great Titchfield Street, W. 1. 1932. Price 15s.

culin, and various surgical methods. This comprehensive manual within the limits indicated by its sub-title will serve a useful purpose. The volume closes thus: "The increasing percentage of success with those who report themselves for treatment in all countries is not due to the superiority of a single method of treatment; on the contrary, it is the sum total of the service of them combined as they are discriminately applied according to the nature of a case." Truly this is a sound conclusion.

Dr. Arnold Renshaw has compiled a handbook which will be appreciated by those for whom it has been written.¹ The work meets a great need. It seeks to interpret to the clinical consultant and the general practitioner of medicine the meaning and application of laboratory investigations in actual practice. The author has succeeded in visualizing the clinician's outlook in regard to the diagnosis and treatment of his cases, and has admirably shown how the skilled pathologist in his laboratory can helpfully co-operate. Without entering too much into technical details, Dr. Renshaw explains the nature and methods of laboratory service, and his admirable effort should go far to establish whole-hearted co-operation between clinician and pathologist. We certainly commend his handbook to every busy practitioner. The substance of the book is conveniently arranged according to regions, systems, and special pathological products. There is a practical exposition regarding sputum, and references to the Pirquet reaction and other matters relating to the investigation of tuberculous cases. We anticipate for Dr. Renshaw's manual a wide circulation.

Dr. R. H. Major has produced an interesting and novel work, which we commend to the notice of both medical and non-medical readers.² It is an exposition of the scientific basis and practical application of modern medicine lucidly expressed in a manner which the ordinary layman can understand and profit by. The busy doctor will also appreciate the book. In the chapter on X-rays is a reference to Finsen and the Finsen Medical Light Institute at Copenhagen and the application of light in the treatment of lupus and other forms of tuberculosis. The volume also contains excellent accounts of vitamins, antisepsis, the conquest of pain, and various derangements and diseases in the study of which intelligent people now take an interest.

Professor Thayer's fine volume should appeal to all English speaking and reading members of the medical profession.³ It is a collection of addresses and papers which have been published at intervals during a long and honourable professional career. The work worthily opens with striking tributes to the well-beloved Osler as teacher, physician,

¹ "Laboratory Service and the General Practitioner: An Interpretation of Pathological Aids to Diagnosis." By Arnold Renshaw, M.D., B.S. (Lond.), D.P.H. (Manch. and Camb.), Director of the Laboratory of Applied Pathology and Preventive Medicine, Manchester, etc. With an Introduction by Dan McKenzie, M.D. (Glas.), F.R.C.S.E. Pp. 279, with 8 illustrations. London: Humphrey Milford, Oxford University Press, Amen House, Warwick Square, E.C. 4. 1932. Price 2s. 6d.

² "The Doctor Explains." By Ralph H. Major. Pp. xvi + 275 + viii, with 16 illustrations. London: Chapman and Hall, Ltd., 11, Henrietta Street, Covent Garden, W.C. 2. 1932. Price 15s.

³ "Osler and Other Papers." By William Sydney Thayers, M.D., LL.D., Sc.D., F.R.C.P.I., Professor Emeritus of Medicine at the Johns Hopkins University. Pp. 386. Baltimore, Maryland, U.S.A.: The Johns Hopkins Press. London: Humphrey Milford, Oxford University Press. 1931. Price \$3.50.

and friend, and sets forth reminiscences of Osler in Baltimore days. Then follow brilliant and suggestive studies relating to medical education, problems of medicine, rules of health, scholarship in medicine, teaching and practice, and self-education under guidance. There are also revealing addresses on Laennec and his service to medicine and mankind, the contributions of Pasteur, the life and work of Richard Bright and other notabilities. One of the most inspiring and helpful of the contributions deals with the duties and problems of the physician. We could wish that this stimulating volume might be presented to every man and woman entering the profession of medicine. Professor Thayer died on December 10, 1932, at Baltimore. This volume will be welcomed by colleagues, pupils and friends, and all on both sides of the Atlantic who have profited by contact with the author's lovable personality. Dr. Thayer's contributions to medicine are of much interest and value, and worthy of one who was the successor of Osler in the Chair of Medicine at Johns Hopkins University.

Colonel Blackham has produced a handsome volume giving in vivid picturesque words and with many fine illustrations a history of Britain's capital of which every citizen of London and our far-flung Empire may be proud.¹ The work is in every way attractive and effective, and truly, as Lord Wakefield says in his sympathetic and commendatory Foreword, the author has succeeded in making "not merely the stones, the statues, and the shrines, but the everyday work of her men and women, tell the story of the living London—the Sovereign City of the Empire." There is much in Colonel Blackham's beautiful book which will be of interest to those who, like himself, are members of the medical profession. It tells how the health of the City and Port of London is faithfully and scientifically guarded, how the markets are supervised, the young educated, and the sick, the insane, the destitute, the orphan, the vagrant, the vagabond, and other needy folk are cared for. As the whole world knows, from Guildhall and Mansion House of the City of London arise springs of charity which bring succour to all parts of the globe. Doctors will be specially interested in the chapter entitled "The Birthplace of British Medicine," giving interesting data regarding the practice of medicine and surgery, the founding of the Royal Colleges of Physicians and Surgeons and the Corporation of Apothecaries. The volume also deals with the establishment of the Royal Hospitals of St. Bartholomew, St. Thomas, Bethlehem and Bridewell, also Christ's Hospital, and other institutions devoted to education and charity. There are references to the open spaces which add so greatly to the charm and health of the city. Colonel Blackham has produced a notable work, and his publishers have issued it in a worthy form.

A new and twentieth edition of Volume I. of "The Extra Pharmacopœia" has recently been issued thoroughly revised and brought

¹ "London for Ever: The Sovereign City—its Romance; its Reality." By Colonel Robert J. Blackham, C.B., C.M.G., C.I.E., D.S.O., of the Middle Temple and Gray's Inn, Barrister-at-Law, Chairman of the Valuation Committee of the Corporation of London. With a Foreword by Colonel and Alderman the Right Honourable the Lord Wakefield of Hythe, C.B.E., LL.D., President of the Royal Hospital of Bethlehem and Bridewell, formerly Lord Mayor of London. Pp. xv + 336. With maps and illustrations. London: Sampson Low, Marston and Co., Ltd. 1932. Price 12s. 6d.

up-to-date.¹ This work, under the able direction of Dr. W. Harrison Martindale, admirably maintains its conspicuous position regarding all advances in chemistry as applied to the study of medicine and the art of healing, developments in pharmacology and allied sciences now associated with the principles and practice of medicine. The work is a model of condensation, exposition and practical service. Much new material appears in the new edition, which marks the fiftieth year of this notable work's life. There are sections which will be of particular assistance to tuberculosis officers and those dealing with tuberculosis. There is a good summary of BCG (*Bacille Calmette-Guérin*), and there is a review of tuberculin reactions for diagnosis. A synopsis of additions and changes in the *British Pharmacopœia* is also incorporated. No medical officer or adviser should be beyond touch with "The Extra Pharmacopœia," for it is an indispensable and unique work of reference constantly wanted.

Dr. Robert Hutchison's introduction to elementary therapeutics, first issued in 1926, has now reached a second edition.² The work, originally based on lectures delivered to students, has been revised and in parts re-written, and now provides an acceptable handbook on medical treatment. A new chapter has been added in conjunction with Dr. G. M. Wauchope on Physiotherapy. There is a serviceable section on Blood Transfusion.

Mr. Muirhead has just issued a second edition of his admirable handbook on Scotland, one of the members of the excellent Blue Guide Series.³ It is the most compact, up to date, and generally useful companion volume which can be recommended to anyone visiting districts north of the Border. The first edition appeared in 1927, and the present edition has been improved in ways which motorists for health or pleasure and other visitors will appreciate. We would particularly commend the introductory sections dealing with the study of Scottish monuments, Scottish history, and the Rulers of Scotland. There are also glossaries, and a good bibliography. The maps are first class, and the section headed Practical Information will be appreciated by every class of traveller in the North.

A wireless equipment is now available in most hospitals, sanatoria and other establishments devoted to health and healing, and all who in institutions and elsewhere appreciate the wonderful services rendered by the British Broadcasting Corporation, of which as a nation we may justly be proud, should secure a copy of the new B.B.C. Year Book.⁴ This remarkable and finely produced volume is a mine of information regarding all the activities which centre at and the energies which emanate from Broadcasting House. It furnishes a survey of the past ten years of broadcasting, provides a

¹ "The Extra Pharmacopœia of Martindale and Westcott." Revised by W. Harrison Martindale, Ph.D., Ph.C., F.C.S. Twentieth edition. Vol. I. Pp. xlvii + 1216. London: H. K. Lewis, Ltd. 1932. Price 27s. 6d.

² "The Elements of Medical Treatment." By Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond Street. Second edition. Pp. vi + 188, with figs. Bristol: John Wright and Sons, Ltd. 1932. Price 5s.

³ "Scotland." Edited by Findlay Muirhead. Second edition. Pp. liv + 454, with a complete atlas of Scotland and 37 other maps and plans. London: Ernest Benn, Ltd., 154, Fleet Street, E.C. 4. 1932. Price 12s. 6d.

⁴ "The B.B.C. Year Book, 1933." Pp. 480, with illustrations. London: The British Broadcasting Corporation, Broadcasting House, W. 1. Price 2s.

description of the wonders of Broadcasting House, explains the construction and conduct of programmes, and gives much information regarding technical matters. The work is admirably produced and generously illustrated.

The Hospital Almoners' Association has issued a handbook which we commend to the notice of all interested in the administration of hospitals and the betterment of conditions affecting the patient.¹ It furnishes an authoritative and instructive account of Hospital Social Service in this country, and is appropriately dedicated to the memory of the late Sir Charles Loch. The work sets forth the essential features of our British hospital system, gives the history of almoners' work, and its nature and achievements today in connection with various institutions. The almoner has come to stay, and deserves sympathy and assistance.

Dr. Cecil Wall has written an attractive account of the Society of Apothecaries, which, as a professional medical body and a City Company, has an interesting history dating from 1617.² The charming drawings add much to the value of Dr. Wall's pleasing brochure.

Messrs. Austen and Hughes have prepared as No. 14 of the Economic Series of booklets issued by the British Museum (Natural History) a helpful handbook regarding clothes moths and house moths which will be of service to those who in institutions and private houses have to maintain an active campaign against the depredations of insect invaders.³ The work is an illustrated guide relating to the various kinds of clothes moths and house moths commonly met with in this country, and furnishes guidance as to practical measures whereby the ravages of these pests may be prevented or arrested. Every good housewife should secure a copy of this serviceable manual.

"The Annual Charities Register and Digest," issued by Longmans, Green and Co., Ltd., and the Charity Organization Society, Denison House, Vauxhall Bridge Road, S.W. (price 8s. 6d.), is now in its fortieth edition. It is an indispensable reference work for all who seek guidance in regard to charities in or available for cases in the Metropolis. Particulars are given of hospitals and sanatoria dealing with tuberculous cases.

"Hobbies New Annual" is a work which will fascinate all boys and others having creative and constructional powers, but it is also a volume which we would particularly commend to doctors, nurses, and others having to provide patients with interests and apply principles of occupation-therapy. It is a fine guide to practical model-making, handicrafts and hobbies, with explicit plans, line drawings, and other illustrations.⁴ This unique annual only requires to be seen to be appreciated.

¹ "The Hospital Almoner: A Brief Study of Hospital Social Service in Great Britain." Pp. iv+77. London: The Hospital Almoners' Association, Tavistock House (North), Tavistock Square. 1932. Price 1s.

² "The London Apothecaries: Their Society and their Hall." By Cecil Wall, M.A., D.M., F.R.C.P., Senior Warden. Pp. 28, with 4 drawings by Edward Swann. London: The Apothecaries' Hall, Water Lane, Blackfriars, E.C. 4. 1932.

³ "Clothes Moths and House Moths: Their Life-History, Habits, and Control." By Major E. E. Austen, D.S.O., Keeper of the Department of Entomology, assisted by A. W. McKenny Hughes, D.I.C., Assistant-Keeper in the same Department. Pp. 56, with 20 figs. London: British Museum (Natural History). 1932. Price 6d. (by post, 7d.).

⁴ "Hobbies New Annual of Easy-to-Make Working Models, and How to Build Them." Edited by F. J. Camm, Editor of *Hobbies*. Pp. 128, with 380 illustrations and three working models. London: George Newnes, Ltd., 8-11, Southampton Street, Strand, W.C. 2. 1932. Price 3s. 6d.

PREPARATIONS AND APPLIANCES.

HYGIENIC APPLIANCES AND THERAPEUTIC PREPARATIONS.

THE QUILLETTE is a new form of blanket which only needs to be known and used to be widely adopted.¹ It is likely to replace many of the usual forms of bed-covering, for it combines utility with beauty and durability with inexpensiveness. Made from fine wool carefully selected and with fast-woven pile, it is soft and comforting to the touch and remarkably light, retaining a large volume of air in its texture, so ensuring warmth without any sense of heaviness and oppression. If, however, the sleeper gets too warm the heat of the body causes the air to circulate through the fabric and an even temperature is maintained. Being very pliable it conforms to the body and follows its movements, and when in use the covering does not slip from the bed as is the case with an ordinary eiderdown or bedspread. It should be noted that the Quillette can be repeatedly dry-cleaned or washed at home with Lux. The Quillette provides for all needs and tastes. It is made in eight standard sizes, from 24 x 26 to 96 x 92, and the colour shades are camel, champagne, gold, blue, saxe, sky, mauve, jade, pink, and rose. We specially commend the Quillette for the use of all invalids and sick persons, particularly consumptives and other forms of tuberculous patients. For the subject of pulmonary disease this form of light, protective, pleasing covering is ideal. The "SOMNOGIENE" Underblanket is an extension of the Quillette, which in form and texture it closely resembles. It is of champagne colour, intended for use between the sheet and the mattress, so adding to the comfort and protection of the user. We have personal experience of both these new forms of bed equipment and can testify to their many excellent qualities; we consider them the best of their kind.

WOODEN CHAIRS suitable for service in connection with sanatoria and open-air schools are being supplied by Mr. Claude J. E. Ford, of Daventry.² These chairs are of convenient size and shape, and the wood can be thoroughly treated with a germicidal and anti-rot preparation which enables them to withstand wet and exposure in the open. Chairs for both children and adults are available and at inexpensive rates. (Price 38s. per dozen, natural finish; anti-rot treatment, 4s. per dozen extra.) Mr. Ford is also the manufacturer of excellent bed-tables, carrying-chairs, and bed-rests.

THE ACCOSON ASEPTIC THERMOMETER CASE provides a simple, inexpensive means whereby a thermometer may be carried safely disinfected and ready for immediate use.³ It is made of "unbreakable"

¹ The Quillette Bed-Covering and Somnogene Underblanket can be bought at the leading stores, but if any difficulty is experienced in obtaining them application should be made to the sole distributors to the trade, H. and M. Southwell, Ltd., Bridgnorth, Shropshire.

² Particulars regarding the Ford Wooden Chairs and other Ford specialties can be obtained on application to the manufacturer, Mr. Claude J. E. Ford, Ashworth Street Works, Daventry.

³ The Accoson Aseptic Thermometer Case can be obtained from Lewis and Burrows, Ltd., 146, Holborn Bars, E.C. 1.

glass, and is fitted with a clip for attachment to the doctor's waistcoat pocket. At the lower end of the glass tube is a spring attached to a clip, into which the bulb of the thermometer fits, so keeping it securely protected when the cap of the tube is screwed into place. A red line marks the level at which the antiseptic fluid should be kept. (The price to members of the medical profession is 1s.)

THE SUMMIT FOUNTAIN PENS¹ supplied by Curzons Ltd., of Liverpool, admirably meet the special requirements of doctors, nurses and patients who desire a constant companion and an always reliable servant. The body of each pen is constructed of unbreakable material, and is available in various attractive colours, while the nibs are of shapes and sizes to fit every kind of script. (The prices of the pens range from 7s. 6d. to 21s.)



THE "MARLBOROUGH"
STONEWARE HOT
WATER BOTTLE.

THE "MARLBOROUGH" HOT WATER BOTTLE is an attractive, serviceable form of British stoneware for the warming of beds.² The heating surface is extensive, although the bottle is not large. Moreover, it cannot be turned over in the bed and there is no risk of leakage. As a bed companion for patients in hospital, sanatorium or elsewhere, the "Marlborough" will prove popular. The price is 3s post free.

THE SOLILA SURGICAL NEEDLES possess all the qualities essential for effective hypodermic needles — sharpness, correct seating, freedom from clogging, reliable temper, resistance to oxidation, and durability.³ They are available in all forms and sizes, and can be obtained readily from regular supply houses.

THE LILIA SANITARY TOWEL for the use of women can be specially recommended for patients in sanatoria and other institutions.⁴ It is constructed of scientifically devised soluble cellulose, and possesses high absorbent qualities, and generally is admirably adapted for its purpose. Special terms are arranged for sanatoria.

GLAXO PRODUCTS will be of interest and service to many readers of this *Journal*.⁵ Special reference should be made to the Ostelin Vitamin D Preparations, particularly in liquid, tablets, emulsion, and with colloidal calcium. The Adexolin (vitamin A and D) Preparations will also be of advantage in sanatorium practice. The preparations of vitamin tested cod-liver oil and cod-liver oil emulsion with iodine and calcium glycerophosphates are invaluable in the treatment of tuberculous cases. We desire particularly to recommend Ostomalt. This is an

¹ Particulars regarding the various forms of Summit Fountain Pens can be supplied by the manufacturers, Curzons Ltd., South Hunter Street, Liverpool.

² The "Marlborough" is made by Lovatt's Potteries, Ltd., Langley Mill, near Nottingham.

³ The Solila Stainless Steel Needles are manufactured in England, and the sole wholesale distributors are the Amalgamated Dental Company, Ltd., Solila House, Swallow Street, Piccadilly, W. 1.

⁴ Particulars regarding the Lilia Sanitary Towel can be obtained on application to Sashena, Ltd., Lilia Works, Bartholomew Road, N.W. 5.

⁵ "Products of the Glaxo Laboratories" is a booklet of 79 pages. A copy of it will be sent to any doctor on application being made to Glaxo Laboratories, 56, Osnaburgh Street, N.W. 1, from whence also full particulars regarding the specialities prepared in the Glaxo Laboratories can be obtained.

elegant preparation of the finest malt, rich in vitamin B complex, diastase, and nutritive diffusible carbohydrates and organic phosphates, reinforced with vitamins A and D, and a concentrate of orange juice rich in vitamin C, together with calcium glycerophosphates. It has a delightful and appetizing flavour, and is very popular with children. We have used Ostomalt extensively at the Harpenden Sanatorium of the National Children's Home and Orphanage, and have found that tuberculous and delicate children flourish on it, putting on weight and improving generally. When taking Ostomalt under open-air conditions chilblains do not develop, and in every way cases improve. There is no doubt that, especially during the winter months, Ostomalt is of great advantage in the treatment of tuberculous and tuberculously inclined children. Among other new specialities issued by the Glaxo Laboratories reference may be made to the following: Buttermilk Powder provides a ready means for the production of reliable buttermilk, which is of service in the treatment of intestinal tuberculosis and other morbid conditions associated with digestive troubles. Protosol is a reliable preparation of prepared soluble casein. Malto-Dextrin is an excellent form, easily assimilable, of maltose with dextrins, and especially suitable for modifying milk. It will be helpful in dealing with tuberculous and other delicate infants, children, and invalids. Farex Cereal Food is a convenient dietetic preparation, forming a balanced food, reinforced with mineral constituents and vitamins A, B₁, B₂, D, and E. It is used with milk or water as the medical adviser may direct. The Glaxo Laboratories also continue to make a feature of the various grades of Glaxo; they also provide excellent brands of anti-staphylococcus and anti-streptococcus anti-viruses and allied specialities.

The Crookes Laboratories have introduced a superior brand of HALIBUT LIVER OIL,¹ which is available in convenient vials and bottles with pipette, and capsules. It is prepared by a special process from carefully selected livers, and is particularly rich in vitamins A and D, which have been proved to be of exceptional benefit for tuberculous subjects. A collosol brand of Halibut Liver Oil and Malt Extract has also been provided, and will find much favour with children and other persons who desire a palatable preparation: it is rich in vitamins A, B, C, and D.

KARO and DEXTROSOL are nutrients which are proving of much service in providing palatable carbohydrate preparations for tuberculous persons and delicate children and other unstable and malnourished subjects standing in need of sugar elements in their dietary. "Karo" is a mixture in syrup form of dextrin, malto-dextrin, maltose, dextrose and sucrose, while "Dextrosol" is a pure, medicinal, powdered glucose. (The price of "Karo," in 2 lb. tins, is 2s. 6d. "Dextrosol" can be obtained at 1s. 6d. per lb. packet.)²

IODIZED TINCTURE OF GUAIACOL is a new preparation intended for oral administration.³ It appears to possess active germicidal properties,

¹ Particulars regarding the new Halibut Liver Oil preparations can be obtained from the Crookes Laboratories, Park Royal, N.W. 10.

² Particulars regarding "Karo" and "Dextrosol" can be obtained from Corn Products Company, Ltd., Bush House, Aldwych, W.C. 2.

³ Iodized Tincture of Guaiacol is supplied by The British Drug Houses, Ltd. Graham Street, City Road, N. 1.

and has proved of service in dealing with cases where there is involvement of serous, synovial and ciliary membranes and other tissues. In certain tuberculous subjects it seems to have been helpful.

NUFIX is a special hygienic and cosmetic preparation for dressing the hair.¹ It possesses special advantages, does not soil headwear or stain linen, gives a glossy appearance, maintains the hair in position, and keeps scalp and hair in a healthy condition. This excellent application is particularly suited for those living an open-air life. It is a British production.

Chocolate and other confections are acceptable gifts for young and old, and are always particularly welcomed by doctors, nurses, and patients in hospitals, sanatoria, and elsewhere. They are specially appreciated at this time of the year. Manufacturers this season appear to have vied with each other in presenting the various forms of chocolate and sweetmeats in delightful forms, caskets supplementing the extensive range of customary boxes.² We would warmly commend the new series of "Chosen Chocolates," by Cadbury Bros., Ltd., of Bournville, available in six assortments: Fruit Centres, Nuts, Truffles and Marzipan, Coffee Centres, Hard Centres, and Dessert. Each box contains a selection of the finest class, and provides an ideal arrangement for the provision of acceptable gifts, everyone being able to get exactly the chocolate most desired. The ever-popular Cadbury specialities are at all times and in all places sure of an enthusiastic reception. These include King George, Princess Elizabeth Chocolate, Milk Tray, and the famous Block Chocolate. Reference should also be made to the recently introduced food-drink, Bourn-Vita, which, made with fresh full-cream milk and eggs from British farms, British malt, and Empire cocoa, provides a delicious beverage.

COLLOSOL CALCIUM WITH VITAMIN D (Crookes) is a colloidal calcium salt of fatty acids and is standardized to contain 250 international units per teaspoonful of vitamin D, in the form of irradiated ergosterol, equivalent in vitamin D to half a teaspoonful of the best cod-liver oil.³ This oral preparation promises to be of much service in the treatment of tuberculosis and other affections in which malnutrition is a conspicuous feature. (Available in bottles, 4 ozs., 4s. 6d.; 10 ozs., 9s. 6d.; 20 ozs., 17s.)

LISTERINE is a justly popular, hygienic preparation of much service in maintaining health and in the treatment of various morbid states.⁴ It is an antiseptic, deodorant and germicide, non-poisonous, agreeable, convenient and trustworthy. Its constituents include thyme, eucalyptus, baptisia, gaultheria, menthol, with boric and benzoic acid. It is admirable as a mouth-wash and gargle, for the cleansing of gums and teeth, for allaying irritation of skin and mucous membranes, and for the preparation of soothing, cleansing and deodorizing lotions. For use as a sanitary and therapeutic agent in sanatoria and wherever tuberculous subjects are undergoing treatment, Listerine will be found to be of the

¹ Nufix is manufactured by Walden, Walden and Co., 15, Grape Street, New Oxford Street, W.C. 1.

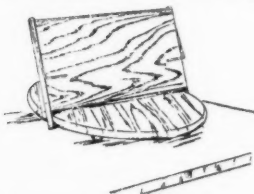
² Full particulars regarding the Cadbury products can be obtained on application to Cadbury Bros., Ltd., Bournville, Birmingham.

³ Particulars regarding Collosol Calcium with Vitamin D and other collosol preparations can be obtained on application to the Crookes Laboratories (British Colloids Limited), Park Royal, N.W. 10.

⁴ Listerine and the Listerine preparations are supplied by the Lambert Pharmacal Company, Standard Road, Chase Estate, London, N.W. 10.

greatest service. An excellent form of Listerine tooth paste is now available and is to be strongly commended as a reliable agent in securing oral hygiene and the preservation of the teeth.

THE WHITEFIELD ADAPTABLE TABLE and DETACHABLE BOOK REST is an ideal gift for sick and sound folk, and can be enjoyed by both the vigorous and the bedfast.¹ It will be appreciated by doctors, nurses, and all others who enjoy repose and comforts when off duty. We have been using this novelty with special satisfaction. The chief features are shown in the adjacent figures. The table is constructed



THE WHITEFIELD BOOK REST.

This detachable and adjustable equipment can be used with the Whitefield Table.



THE WHITEFIELD ADJUSTABLE TABLE.

It is shown in use alongside a resting couch.

of oak, and its foot-piece has a cup-shaped depression into which fits a leg with castor of chair, table, settee, or bed, so firmly securing the little table and all materials resting thereon. The height of the table can be adjusted from 19 inches to 39 inches. A detachable book rest, with base having rubber feet, can be used with the table, or a lamp or other requirements can be substituted. The equipment can be readily separated into four sections and packed up for storage or transit. (The price complete with book rest and swivel ash tray is 15s. 6d. The detachable book rest and base fitted with rubber feet is 5s. 6d. extra.)

Co-RE-GA is a preparation which wearers of dental plates will appreciate.² It is a hygienic and reliable adhesive, which after the denture has been thoroughly cleaned is scattered evenly on all surfaces of the denture coming in contact with gums and roof of mouth. By the use of this agent a dental plate is firmly fixed with comfort and without irritation.

Cigarettes are now available in many attractive and reliable forms, and among the best and most popular are those bearing the name of "Abdulla."³ A case of Abdulla cigarettes forms a delightful gift, and is warmly appreciated by most doctors and many other smokers. These cigarettes—Virginia, Turkish, Egyptian and Russian—are all of excellent workmanship, and are made from scientifically selected and skilfully blended tobacco. Many delicate patients who find ordinary cigarettes irritate throat and lungs can enjoy Abdulla brands. It should be noted that a popular form, the Abdulla Salisbury cigarette, is now being issued in Virginia and Turkish tobacco. Price 1s. for 20.

¹ Particulars regarding the "Whitefield" Adaptable Table and Detachable Book Rest can be obtained from the makers, The Whitefield Utilities Company, 155A, Hampton Road, Southport, Lancashire.

² Co-Re-Ga is made by the Corega Chemical Company, Cleveland, Ohio, U.S.A., and the agents for Great Britain are Thos. Christy and Co., 4, Old Swan Lane, E.C. 4.

³ Particulars regarding all forms of Abdulla Cigarettes can be obtained on application to Abdulla and Co., Ltd., 173, New Bond Street, W. 1.

THE OUTLOOK.

THE HEALTH OF THE SCHOOL CHILD.

SIR GEORGE NEWMAN'S Annual Report as Chief Medical Officer of the Board of Education is always a publication of the greatest value to those interested in the welfare of our nation's school children. The latest issue contains much which will be of special service to school medical officers, tuberculosis officers, and all others engaged in investigating and safeguarding the health of children, and seeking to arrest or ameliorate physical and mental ills in the early years of life.¹ The Report opens with a general survey, and then follow a series of sections dealing with Schemes of Medical Treatment and Amelioration, The Pre-School Child, Adenoids and Enlarged Tonsils, Acute Rheumatism, Defective Vision and Hearing in School Children, The School Dental Service, The Diet of School Children, The Healthy Child, Provision of School Meals, Physical Education, closing with a helpful chapter of Conclusions. The staff of the School Medical Service is now considerable, including 1,339 school medical officers, 996 specialists, 765 dentists and 5,573 nurses. The number of children inspected during 1931 was 1,759,186 or 35·7 per cent. of those in average attendance. In addition 1,084,467 children were referred for some special reason, thus making a total of 2,843,653 examined, representing 57·7 per cent. of the average attendance. No less than 800,000 morbid defects awaited treatment. Among routine inspections the incidence per 1,000 of tuberculosis in 1931 was—Pulmonary: (a) definite, 0·2; (b) suspected, 0·7; non-pulmonary, 0·7. The total of school clinics number 1,801, of which 271 are orthopaedic, and 73 for artificial light treatment. There are some 3,000 maternity and child welfare centres, the day nurseries number 100, and some 55 nursery schools exist, containing approximately 4,400 children. The chapter devoted to a consideration of Adenoids and Enlarged Tonsils has attracted considerable attention, and the data and opinions set forth in the Report deserve fullest consideration, particularly such as refer to tonsillectomy. The position is judiciously summarized. The chapters on Diet and Provision of School Meals are of exceptional importance especially for those responsible for the care of tuberculous and tuberculously disposed children. We would also direct special attention to the section dealing with Physical Education. The total net annual cost of the School Medical Service as a whole is stated to be £3,700,000, and the cost in 1931-32 per unit of average attendance 1930-31 is put at 8s. 2d. The Report closes with paragraphs relating to the Need for Economy Considerations. The Appendix contains a series of valuable statistical tables. In Table XIV. it is shown that there exists as open-air schools accommodation for 10,526 in day schools and 3,626 in residential schools; the number of places in sanatoria for pulmonary tuberculosis is returned as 2,070.

¹ "The Health of the School Child." Annual Report of the Chief Medical Officer of the Board of Education for the Year 1931. Pp. 156. London: H.M. Stationery Office. 1932. Price 2s. 6d.

THE TUBERCULOUS CHILD.

Dr. John W. S. Blacklock has issued through the Medical Research Council, 38, Old Queen Street, Westminster, S.W. 1, as Special Report No. 172, an imposing study based on nearly eight years' investigation of children at the Royal Hospital for Sick Children, Glasgow.¹ The conclusions reached certainly seem to shed light on certain aspects of the problem of tuberculosis occurring in Scottish children. Dr. Blacklock's conclusions have been arrived at after a consideration of 1,800 consecutive autopsies, in each of which special examination was made for evidences of tuberculous disease. Of the whole series 283 or 15·7 per cent. showed naked-eye evidence of tuberculous infection. In a considerable number of cases with definite tuberculous damage the infective organisms were isolated and typed. The presumed pathway of infection was carefully studied and the distribution of lesions in various parts of the lung worked out. It would appear that all the children who died from tuberculosis and showed the primary lesion in the lungs were infected directly through the air-passages by bacilli derived from other human beings. Another result of Dr. Blacklock's work is the conclusion that in the West of Scotland pulmonary tuberculosis in young children is nearly always fatal. His findings are definitely opposed to the view that active pulmonary tuberculosis in the adult is the result of the flaring up of dormant infection received in childhood. He holds that pulmonary tuberculosis in the adult is different both in its site of occurrence and in its pathology, and comes as a rule from a new infection contracted in later life. In contrast with the pulmonary tuberculosis cases, which almost invariably were due to the human type of tubercle bacilli, the primary abdominal infections were mainly caused by the bovine bacillus. Dr. Blacklock does not support the view held by many Continental authorities that the alimentary canal provides the chief path of entry for tuberculous infection in the child. It would seem that in Glasgow the incidence of infection by human bacilli is always higher than that by the bovine type. But bovine tuberculous disease is apparently more prevalent in Scotland than in England or on the Continent. Dr. Blacklock has considered the significance of tuberculin reactions, and is undertaking further researches regarding the sensitivity of Scottish children to tuberculin. He appears to support Dr. Hart's opinion that in the infant a positive tuberculin reaction is to be regarded as a grave prognostic sign. The monograph has evidently been prepared with Scottish thoroughness, and it certainly provides a valuable amount of material for discussion. Dr. Blacklock's able work demands the careful study of all pathologists and clinicians interested in the investigation of tuberculosis in young subjects.

COUNTRY CLASSROOMS FOR SCHOOL-CHILDREN.

Experiments on a large scale have been made during 1931 and 1932 for taking elementary-school children from the more crowded districts of the city of Oxford to classrooms erected in ideal country surround

¹ Tuberculous Disease in Children: Its Pathology and Bacteriology." By John W. S. Richards, M.D., Gardiner Lecturer on the Pathology of Diseases of Infancy and Childhood in the University of Glasgow, and Pathologist to the Royal Hospital for Sick Children, Glasgow. Pp. 155, with 30 tables, 31 diagrams, and 23 plates. London: H.M. Stationery Office. 1932. Price 3s.

ings on the Wytham Estate only a few miles away. Most of the classrooms, which are scattered over a large area of ground, are built of brick and are up to-date in every respect. At the beginning of this year two additional wooden classrooms were erected, as shown in the illustration below from a photograph, in order to enable extra classes of eager children to attend the school. These wooden classrooms were erected on the simplest possible lines, and cost only just over £125 each. Their dimensions are 35 by 20 feet, with a verandah 9 feet wide at the back, which is most useful in many respects. It will be noticed that the floor is raised well above the ground so that there can be no



A WOODEN CLASSROOM AT THE WYTHAM COUNTRY SCHOOLS.

damp. The roof is of brindle-coloured asbestos tiles and wood-lined, and the room can be heated by a small stove. It is to be noted that the total capital cost of these classrooms, exclusive of equipment, works out to only just over £3 per head on the basis of 40 children in the class. The total accommodation at the Wytham Country Schools is for 300 children a day during the summer and for at least 160 children during the winter. So far, most of the children have come in the summer only. Over a thousand Oxford children paid a weekly visit to the Wytham Schools last summer. This adventure in open-air education has been made possible by Mr. R. W. Fennell, of Wytham.

NOTES AND RECORDS.

The Council of the National Association for the Prevention of Tuberculosis, the headquarters of which are at Tavistock House North, Tavistock Square, W.C. 1, have issued in a volume of 160 pages the Transactions of the Eighteenth Annual Conference, held in the Great Hall of University College, Gordon Street, W.C. 1, July 21 to 23. (London: Adlard and Son, Ltd., 21, Hart Street, W.C. 1, price 7s. 6d.) There is a List of Delegates and a detailed Record of Addresses, Papers

and Discussions, together with an account of the thirty-third annual meeting and notes on special visits to institutions.

The International Union Against Tuberculosis held its eighth International Conference at The Hague and Amsterdam, September 6 to 9, under the presidency of Professor Nolen, of Leyden. The chief subjects discussed were: (1) The Relations between Allergy and Immunity; (2) Treatment with Gold Solutions; and (3) Post-Sanatorial Care of the Tuberculous.

"The Forty-seventh Annual Medical Report of the Trudeau Sanatorium and the Twenty-seventh Medical Supplement for the Year ending September 30, 1931, together with the Fifteenth Collection of the Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis," while of special interest to tuberculosis workers in the United States, contains much that is of value to tuberculosis officers in this country. We would particularly commend the section on "Criteria for Diagnosis and Classification" adopted by the American Sanatorium Association and the National Tuberculosis Association. Among the reprints are a number of excellent studies. "The Report of the Director of the Saranac Laboratory for the Study of Tuberculosis, 1931," shows that the Trudeau ideals still prevail at Saranac Lake. The volume also includes reprints of many valuable studies from the Laboratory. Dr. Edward R. Baldwin has also issued in booklet form an illustrated account of Saranac Lake and the Saranac Laboratory for the Study of Tuberculosis.

The Medical Research Council have made the following awards of Dorothy Temple Cross fellowships for 1932-33, under the terms of the benefaction in that name for research fellowships in tuberculosis: Veronica Bessie Frith Dawkins, M.B., Ch.B., Bristol, resident medical officer, Maltings Farm Sanatorium, Colchester; Gordon Moncrieff Dean, M.B., Ch.B., Aberdeen, late department of surgery, Aberdeen University; Evelyn Mary Holmes, M.B., Ch. B., Manchester, late assistant tuberculosis officer, Welsh National Memorial Association; John Noël O'Reilly, B.M., B.Ch., Oxford, late house physician, Brompton Hospital, London; Walter Graham Scott-Brown, M.D., Cambridge, F.R.C.S., assistant surgeon, Throat, Nose and Ear Department, Royal Free Hospital, London. Dr. Dean will study problems of tuberculosis at Baltimore, U.S.A., while the others will take up researches at different European centres.

Under the will of the late Mr. James Maxwell Grant Prophit, about £120,000 becomes available for research on cancer and tuberculosis. The Royal College of Physicians of London will have £15,000 for tuberculosis research, and the Westminster Hospital £5,000 for tuberculosis research. Two scholarships for tuberculosis investigations are also to be founded, and will be awarded on the recommendation of the Royal College of Physicians.

"The Health Talk—its Place in Health Education," by Iago Galdston, M.D., issued by the American National Tuberculosis Association, 450, Seventh Avenue, New York, is a 78-page brochure which admirably presents essential features in the present-day public health movement, and offers suggestion and guidance to those giving instruction through the spoken word. It should be in the hands of medical officers of health and others engaged in activities seeking the establishment of ways for better health and longer life.

"Bart's Annual, 1932," published by Ed. J. Burrow and Co, Ltd., 125, Strand, W.C. 2 (price 1s.), is the second of what is hoped may be a regular yearly issue in the interests of St. Bartholomew's Hospital. It is an attractive publication, admirably got up, with many full-page portraits and other illustrations and stories and articles by well-known contributors. Particulars are given regarding appealing competitions.

The International Labour Office at Geneva has issued a valuable Bibliography on Pneumoconiosis, giving numerous references to tuberculosis.¹

Much interest is now being taken in the study of the psychology of tuberculosis, and those interested should read the recently issued papers by Dr. S. Vere Pearson² and Dr. A. Morland.³

Dr. Florence E. Meier has published an informing study on the Lethal Action of Ultra-Violet Light.⁴

Dr. G. Chand has issued to members of the medical profession a brochure on "Treatment of Tuberculosis and other Pulmonary Affections by Pneumodine (β -Iodoethyl allyl ether)."

"Prevention and Treatment of Tuberculosis in the Administrative County of Lancaster" forms the Report of Dr. G. Lissant Cox, the Central Tuberculosis Officer, and his colleagues. It contains a number of valuable communications, with numerous instructive illustrations.

The New York Tuberculosis and Health Association has issued a serviceable Directory of Clinics and Health Stations which will be of service to all studying the Tuberculosis Problem and practical Health Questions in America.⁵

Powers X-Ray Products Inc., of 205, West 39th Street, New York City, has favoured us with copies of three booklets which admirably explain the nature and service of the new inexpensive paper films for the taking of skiagrams of the chest: "The Adaptability of Paper Roll Film in Roentgenography," by Margaret Wittner Barnard, M.D.; "The Technique of Using Paper Films for Roentgenograms of the Chest," by Margaret Wittner Barnard, J. Burns Amberson, jun., and Marion Franklin Loew; and "Powers Portable Radiographic Unit for Chests," adapted primarily for the rapid and economical production of radiographs of the human chest, using Powers X-Ray Paper.

Professor Parsons of the Children's Hospital, Birmingham, has favoured us with particulars of an interesting enterprise whereby a number of tuberculous and tuberculously disposed children, through the

¹ "Pneumoconiosis: A List of References"—Studies and Reports of the International Labour Office, Series N (Industrial Hygiene), No. 15. Pp. 76. London: P. S. King and Son, Ltd., Orchard House, 14, Great Smith Street, Westminster, S.W. 1. 1932. Price 2s.

² "Individual Psychology of Phthisis," by S. Vere Pearson, M.D., M.R.C.P. Pp. 8. London: The C. W. Daniel Company, 46, Bernard Street, W.C. 1. 1932.

³ "The Mind in Tubercle," by Andrew Morland, M.D., M.R.C.P. Pp. 8. London: The Lancet Offices. 1932.

⁴ "Lethal Action of Ultra-Violet Light on a Unicellular Green Alga," by Florence E. Meier, Division of Radiation and Organisms, Smithsonian Institution. Pp. 11, with 2 plates. Washington: The Smithsonian Institution. 1932.

⁵ "Directory of Clinics and Health Stations." Information collected by the Associated Out-Patient Clinics Committee of the New York Tuberculosis and Health Association; the Children's Welfare Federation of New York, Inc.; and the Mental Hygiene Committee of the State Charities Aid Association. Reprinted from the Directory of Social Agencies. Published by the Charity Organization Society in co-operation with the Welfare Council. New York: New York Tuberculosis and Health Association, 386, Fourth Avenue. 1932. Price 40 cents.

generosity of Mr. and Mrs. Kunzle, are enabled to benefit by a residence of several months in the famous mountain health station, Davos. We hope to be able to give further particulars of this enterprise in a future issue.

"The Tube-Bus Guide to London," by J. C. Willis, M.A., Sc.D., F.R.S., with maps by Margaret S. Willis, M.A., issued by W. Heffer and Sons, Ltd., Cambridge (price 6d.), is now in a third and entirely revised edition. It is a novel pocket directory which should be in the possession of everyone who travels about London, using Tubes and buses and desiring assistance as to the best way to reach central parts, railway termini, resorts, and the like. The cleverly constructed maps are based on those of the Ordnance Survey.

Among the many diaries now available for medical and other professional men and women, the Roneo Indexed Diary demands special consideration.¹ We have used it during 1932 with much satisfaction. It is provided with a marginal index arrangement whereby any date can be instantly turned up. A whole page is available for each day, allowing plenty of space for the entry of engagements, records, etc. The 1933 issue contains many practical data useful for daily reference. (The price is 5s.)

The "Wellcome" Photographic Diary for 1933, issued by Burroughs Wellcome and Co., Snow Hill Buildings, E.C. 1 (price 1s. 6d.), is now available. This popular photographic exposure calculator, handbook and record book is an indispensable pocket companion and guide for all photographers. It appears in its customary attractive and convenient form, contains much valuable new matter, and is a thoroughly up-to-date reference work.

We have received from the Publishing House of J. Philip Kruseman, 18, Nassauplein, 's Gravenhage, The Hague, Holland, a particularly delightful and artistic calendar for 1933. It consists of a series of fine reproductions of pictures by Dutch masters, including portraits of famous doctors and scenes in medical and surgical life. This calendar is an ideal New Year's gift for all members of the medical profession. (The price is 7s., or \$2.50 post free.)

Messrs. William R. Warner and Co., Ltd., 300, Gray's Inn Road, W.C. 1, the well-known firm of pharmaceutical chemists, have issued, in specially attractive form, "Warner's Calendar of Medical History, 1933," a copy of which every doctor should endeavour to possess. It is an impressive, serviceable volume with a page for each day on which records can be entered. There is a historical note on each leaf referring to some outstanding discovery or event in history, and a quotation from a world leader in thought or action. An appendix provides many useful data for the medical practitioner.

The well-known firm of Allen and Hanburys have recently issued a new and third edition of their valuable reference book "Medicamenta Recentia," which not only contains a detailed exposition of A. and H. Specialities, but furnishes much general information of service to all medical practitioners.²

¹ "The Roneo Indexed Diary" is published by Roneo Ltd., 5-11, Holborn, E.C. 1.

² "Medicamenta Recentia." Third edition, revised and enlarged. Pp. 210. A copy may be obtained by any medical practitioner on application to Allen and Hanburys, Ltd., 37, Lombard Street, E.C. 3. 1932.